PURCHASING

APRIL, 1949

W. B. Wight:

Educational Indigestion

See Page 89

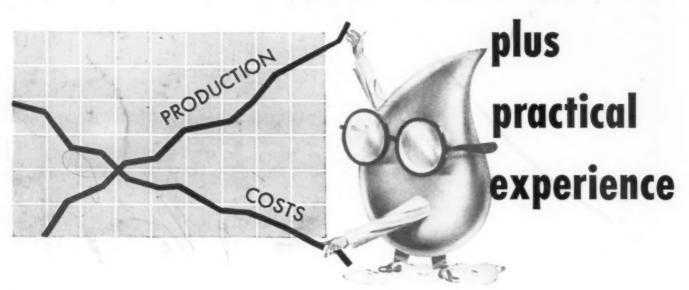
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In your never-ending struggle to keep production up and unit costs down, don't over-look the help you can get in a hurry by calling for a Texaco Lubrication Engineer to work with your production men.

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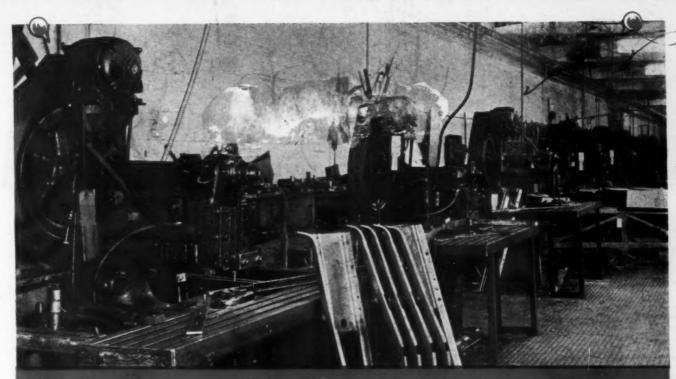
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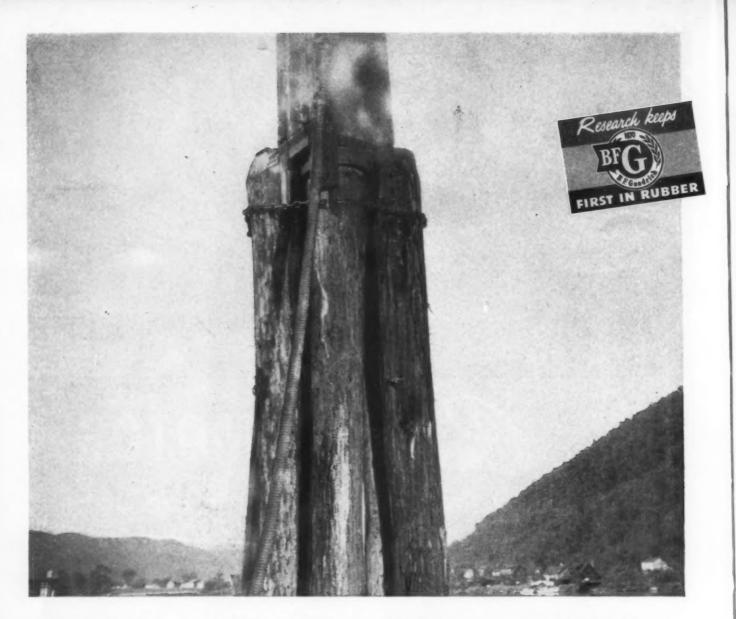
Specify Century motors for all your electric power requirements.



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Ends hazards of scalding and injury from bursting hose wall

B. F. Goodrich Burstproof hose can't be burst by steam

BURSTPROOF steam hose (developed and perfected by B. F. Goodrich) is accurately named-it is completely burstproof. Steam or steam pressure cannot burst the hose wall; this hose can only be ruptured by a blow from outside that actually cuts the wire reinforcement.

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The tube in BFG Burstproof is specially compounded for safety, to resist deterioration at high temperatures. The B. F. Goodrich anti-oxidant Agerite keeps the tube live and elastic, with sufficient "flow" to allow the steel wire reinforcement to anchor itself in the rubber. A braid of strong asbestos cord (woven asbestos fabric in some sizes) imbedded just under the cover, protects it from chars and burns, protects the worker who handles it.

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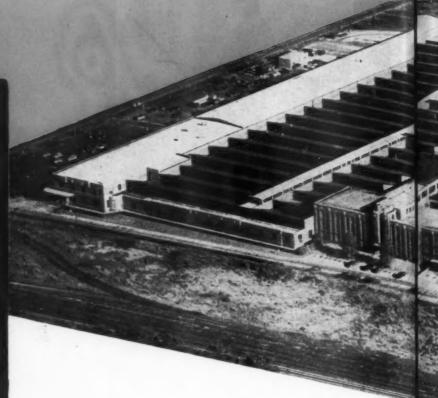
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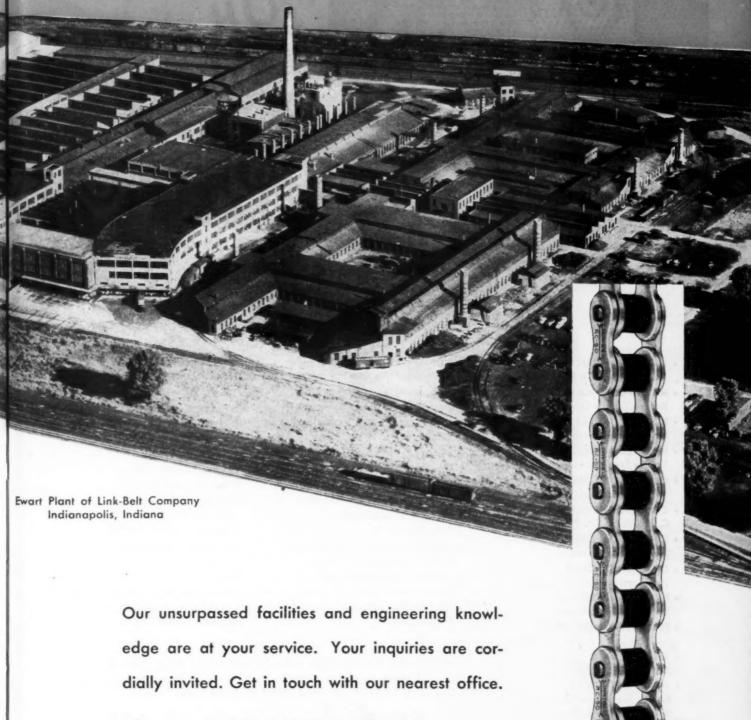
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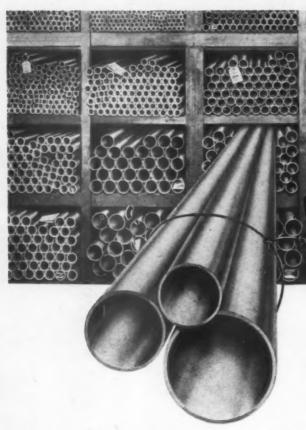
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HEADS



HEAD



HEAD

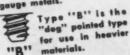
HEX HEAD





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NAME

POSITION

COMPANY



- ☐ 1. SCREWS, FASTENERS—Buyer's Handbook—Ten section catalog No. 48 details complete line of scews (wood, machine, tapping, etc.) bolts (stove, carriage), nuts, plugs, Phillips screws, Sems Fasteners, with tables of wire gauge standards, round-wire weights, terminology, etc. This is new issue. Elco Tool & Screw Corp.
- 2. PROCESSING CARRIERS—Wire Cloth, Heat Treating Carriers, Cleaning Carriers, Processing Equipment, skimmers, pails, sieves, retorts, and the "let George do it" almost automatic tote box truck which simplifies handling of tote boxes, are the subject of Catalog B-7—Specialized Processing Carriers. Rolock Inc.
- ☐ 3. MAGNETIC PULLEYS—Bulletin 350 describes permanent magnetic pulleys. Pulleys are non-electric, require no wiring or electrical connections, and can be used for removal of tramp iron, metals reclamation, and for separating magnetic and non-magnetic materials. Stearns Magnetic Mfg. Co.
- ☐ 4. PUMPS—Self-priming and centrifugal pumps, Models 7M and 10M, 2" suction and discharge openings, capacity 7000 and 10,000 gph, are described in new bulletin. Rice Pump & Machine Co.
- ☐ 5. FLOOR, STAIR MATS, Runners—Circular describes building entrance mats, standing mats, step treads (rubber, abrasive), runners (rubber, abrasive), etc. American Floor Products Co.
- ☐ 6. SOCKET SCREWS—12-page price lists (874 and 875) illustrate and detail hex socket screw products and multiple-spline socket set screws, cap screws and keys, respectively. The Bristol Co.
- 7. BROACHING MACHINES—Bulletin RT-48 describes complete line of new Dual-Ram surface broaching machines. Photos and text explain points of design and operation, and outline uses and features. Accessory equipment listed. Colonial Broach Co.
- 8. PLASTICS—"Tenite (cellulose acetate) Specifications" is new and fifth edition of technical book, which supplies complete data on Tenite I, cellulose acetate, and Tenite II, cellulose acetate butyrate plastic. Tennessee Eastman Corp.
- 9. WELDING FITTINGS—Precision welding fittings produced from seamless steel tubes are illustrated and detailed in Catalog 501. Globe Steel Tubes Co.

- ☐ 10. INDICATORS, Recorders, Controllers
 —Catalog ND46(1) details Speedomax Type
 G Instruments for measuring temperature,
 recording speed and load—electric control,
 and pneumatic control for air-actuated
 valves. Leeds & Northrup Co.
- ☐ 11. POLISHING WHEELS—Bulletin describes walrus hide polishing wheels of wedge-layer structure that eliminate abrasive injury, and solid walrus hide polishing wheels. They are known as the Tusco line. Green, Tweed & Co.
- ☐ 12. LIGHTNING PROTECTOR—Distribution lightning arresters for low-voltage a-c power circuits and secondary services are the subject of illustrated bulletin GEA-2977-B. New Thyrite unit rated at 0-650 volts is available for indoor or outdoor installations. Transformer & Allied Products Divn., General Electric Co.
- □ 13. CLEANING DRUMS—Illustrated booklet No. 574 describes airless abrasive blast cleaning equipment for cleaning steel drums for reusage. American Wheelabrator & Equipment Corp.
- ☐ 14. PACKAGING—"Answer Book" available from the Signode Steel Strapping Co. illustrates and describes job-proved strapping methods for all kinds of products from heavy machinery to packaged flour, for safe, economical protection.
- ☐ 15. ELECTRIC HOISTS—Folder DH-65 describes advanced line of Speedway electric hoists, ½ ton to 10 ton. Wright Hoist Divn., American Chain & Cable Co.
- ☐ 16. LABORATORY MACHINES—Catalog describes swing sledge mills, jaw crushers, crushing rolls, sample grinder and other laboratory equipment designed to cut sampling costs. Sturtevant Mill Co.
- ☐ 17. HEATING TORCH—Mimeo sheets describe self-contained, handsize heating torch which burns over 7 hours with a continuous blue flame at temperature of 2200 deg. F. Torch uses ordinary liquid petroleum gases. Sully Engineering Ltd.
- ☐ 18. TOILET COMPARTMENTS—Five types of toilets are illustrated and described in Catalog 86, along with construction details, specifications and hardware. Color chart and 21 chips illustrate colors, shades and tints available. Sanymetal Products Co., Inc.
- ☐ 19. INSULATION ADHESIVES—Reference Manual describes sealers, surface coatings, cements, mastics, emulsions and

other adhesives for use with various types of insulation in industrial and marine applications. 16 pages. Benjamin Foster Co.

- ☐ 20. FATTY ALCOHOLS—The Cachalot guide to fatty alcohols condenses latest data on Cachalot cetyl, oleyl and stearyl alcohols, and shows properties, uses and analysis data. M. Michel & Co., Inc.
- ☐ 21. FAN-COOLED MOTORS—Bulletin OB57150 describes features of totally enclosed fan-cooled motors with tube-type air to air heat exchangers. Ratings of the metors range from 150 hp at 1200 rpm to several thousand hp at standard speeds of from 3600 rpm to 300 rmp. Allis-Chalmers Mfg. Co.
- ☐ 22. ELECTRICAL Accessories—Loose-leaf catalog covers relays, transformers, coils, terminals, etc. Comar Electric Co.
- ☐ 23. WELDING—Tentative Specifications booklet for Copper and Copper-Alloy Metal Arc Welding Electrodes, issued jointly by A.W.S. and A.S.T.M., covers ASTM Designation B 225-48T and AWS Designation A5.6-48T in 10 pages. Ampco Metal, Inc.
- ☐ 24. MAGNETIC COUNTER—New series 1248 magnetic reset counter with compact, streamlined case that adapts itself easily to built-in installations and which "will fit into almost any product's design limits", are the subject of two specification sheets. Veeder-Root Inc.
- ☐ 25. INDUSTRIAL FURNACES—8-page folder (SC 141) describes line of standard-rated industrial furnaces. Equipment for a broad range of processes is presented, including hardening, tempering, forging, metal melting, air heating, etc. Surface Combustion Corp.
- ☐ 26. PERMANENT MAGNETS—Catalog CDM-2A, 28 pages, describes G-E permanent magnets. A wide variety of cast and sintered Alnico magnets, as well as special magnetic alloys are listed. Procedures are outlined for requesting quotations and obtaining magnet design assistance. General Electric Co., Chemical Dept.
- ☐ 27. ELECTRIC CONTROL DEVICES— New 8-section catalog detailing resistors, rheostats, relays, D-C control, dimmers, accessories, A-C control, and miscellaneous section, is now available from the Ward Leonard Electric Co.
- ☐ 28. JIG BORERS—32-page catalog tells about precision built line of high speed jig borers which maintain their initial precision indefinitely without costly maintenance and expensive down-time losses. Pratt & Whitney.
- ☐ 29. FASTENINGS—26-page booklet describes all the various Duo-Fast tackers, contains information on some of the various jobs that can be done with the equipment, and four pages of illustrations showing the machines in action. Fastener Corp.
- ☐ 30. ACID-PROOF CEMENTS—Circular describes acid-proof cements and acid tank sealers. It gives specifications and technical information. Sauereisen Cements Co.
- B-3881, 12 pages, covers Underwriters'
 Laboratories approved Quicklag breakers which are of the thermal-magnetic type,

(Please turn to page 14)

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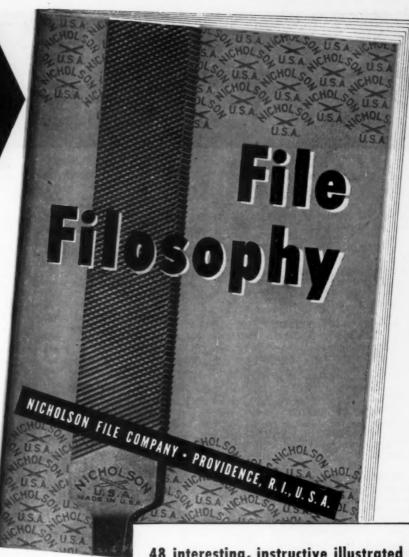


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(Continued from page 12)

individually enclosed, that provide time delay on overloads and instantaneous tripping on dangerous overloads. Westinchouse Electric Corp.

- 32. RAILING PIPE FITTINGS—Bulletin describes Nu-Rail slip-on fittings. All pipe threading and tapped fittings are eliminated. These railing fittings simplify construction and reduce costs. The Hollaender Mfg. Co.
- ☐ 33. SURFACE GRINDERS—Hydraulic Surface Grinders, € models for toolrooms and production lines, that perform superprecision flat grinding, shoulder grinding and form grinding operations, are the subject of 8-page catalog. The DoAll Company.
- □ 34. ROLL-UP SHADES—Wood splint roll-up shades for industrial plants which permit perfect control of light on any kind of a day are the subject of 6-page bulletin. Hough Shade Corp. Industrial Shade Divn.
- 35. BLOWERS—Bulletin 740 describes blowers which have full 360 deg. positioning. Outlet is easily rotated to any angular position, and smooth curves inside of housing turn the flow of air from the impeller with efficiency and quietness. Standard N.E.M.A. frame motors are used. Lindberg Engineering Co.
- ☐ 36. REPAIRING GLASS LININGS—Bulletin deals with the repair of glass lined kettles and glass coated equipment for corrosive service. Repairs are made with or without alloy plates. Carboline Co.
- ☐ 37. COLD STORAGE DOORS—12-page catalog, No. 175 describes doors for moderately low temperatures, for zero and subzero use, and for special cold storage uses. Types include walk-in, reach-in, track, vestibule and double doors. Jamison Cold Storage Door Co.
- ☐ 38. ROOF INSULATION—4-page bulletin describes Rock Cork Felt Sided Roof Insulation. Text contains conductivity data and other information of interest to maintenance men. Johns-Manville.
- ☐ 39. METAL PROBLEMS in Electrical Products—Booklet titled "66 Practical Ideas for Metal Problems in Electrical Products" is available from The International Nickel Co. It lists almost 100 service stories showing how electrical manufacturers have used high nickel alloys to overcome corrosion, heat, vibration fatigue, wear and other performance hazards.

- ☐ 40. CHAIN CONVEYORS—Flexible chain conveyor, offered as packaged product, maximum recommended load per hook 50# (12" centers), variable speeds, is described and illustrated in Bulletin COF 149. Chain-O-Flex Coro.
- ☐ 41. FANS—Catalog 864 describes line of fans for industrial and commercial uses. These include fans for penthouses, spray booths, air ducts, packing rooms, etc. Chelsea Fan & Blower Co., Inc.
- ☐ 42. PUMPS—Improved pump life is the subject of booklet on how the selection of materials for the construction of pump and pump parts can add to the life of such units, title of which is "How to Get Longer Service from Your Pumps." International Nickel Co., Inc.
- 43. STEEL—"How Steel is Made"—that is the subject of booklet presenting story of modern steelmaking from the mines to finished steel. Inland Steel Co.
- 1 44. ALUMINUM CASTINGS—80-page reference manual tells about "Permite Aluminum Alloy Castings—Their Production and Application." Among other things it includes description of the relative advantages of the different casting methods, the alloys used to obtain hardness, tensile strength, ductility and other qualities, and other information important to obtaining the desired casting quality. Aluminum Industries Inc.
- ☐ 45. S. S. TUBING—Booklet TA 1398 on stainless steel tubing for the food processing industries deals with preventing contamination, and gives grades, sizes and finishes of stainless Croloy tubing. The Babcock & Wilcox Tube Co.
- ☐ 46. CONTROL VALVES—Bulletin 10948 covers Hydreco control valves, V-12 series; maximum capacity 50 gpm, recommended operating pressures up to 1400 psi. Hydraulic Equipment Co.
- 47. MATERIALS HANDLING—Cranes and monorals for low cost material handling are the subject of illustrated bulletin issued by the Abell-Howe Co.
- ☐ 48. SCALES—Dial Scales for every industrial use—bench, built-in, cabinet dial, pitless suspension, overhead track platform, hopper, pedestal dial, remote weight recorders, counting scales, dial barrel scales, etc., are described in 8-page bulletin. The Howe Scale Co.
- 49. ASPHALTIC MASTICS 40-page booklet describing asphaltic mastics in-

cludes automobile undercoating, sandfilled and sandless deadeners, flame-proof deadeners, sealers, rust preventives, box coatings, paints, and railway mastics. Witco Chemical Co.

- ☐ **50. DRILLING, BORING, TAPPING**Way type units for drilling, boring, tapping and facing operations are subject of 20-page catalog No. 848. Six case histories and actual production figures are included along with diagrams of different spindles. The National Automatic Tool Co.
- □ 51. SLING CHAINS—32-page catalog, DH-80, is a comprehensive sling chain book. Advantages, specifications, description and working load limits of steel, iron and alloy sling chains are given in simple language. It is a new edition of ACCO Registered Sling Chain catalog. American Chain & Cable Co., Inc.
- ☐ **52. LATHE ACCESSORIES**—Attachments and accessories for South Bend Lathes and drill presses are illustrated and priced in new 28-page catalog 77-U. More than 130 different items are included. South Bend Lathe Works.
- ☐ **53. POWER BRUSHES**—How to Select Power Brushes for Manufacturing Operations in the title of 24-page illustrated catalog. The Osborn Manufacturing Co.
- ☐ 54. Air-Power TOOLS—"Controlled Air Power" is the title of Bulletin CL-15 on air motors, vises, feeds, chucks, feed tables, presses, valves, cylinders, etc. The Bellows Co.
- □ **55. GRAY IRON**—Selection of gray iron to meet the requirements of a product are illustrated in new 32-page booklet published by Frank Foundries Corp.
- □ 56. FITTINGS—New catalog of industrial and marine fittings listing complete line of drop forged wire rope and chain fittings, along with strength and dimension tables, and other data, has been published by The Thomas Laughlin Co.
- ☐ 57. FORCED AIR Heaters—Forced air space heaters for heating, ventiliating, tempering, make-up air, process drying, heat curing, etc., are the subject of 12-page bulletin No. 523. Heaters are available in standard capacities from 400,000 to 2,000,000 btu's per hour. Heaters are fired direct either by oil or gas, and can be supplied with combination burners. Drayo Corp., Heating Section.
- □ 58. EXPENDABLE PALLETS—Expendable pallets are the subject of 20-page booklet which explains types, construction, reducing costs by modern materials handling, unit loading, car loading patterns, and supplies other pertinent data. Addison-Semmes Corp.
- ☐ 59. ALUMINUM SPĒCIFICATIONS—Aluminum Alloys, U. S. Standard Specifications, Cast and Wrought—that is subject of 24-page reference book that gathers in one convenient place the latest specifications of ASTM, AMS, SAW, Federal, Army, Navy and others, as they pertain to aluminum sand castings, permanent mold castings, die castings, wrought alloys and Ingots. Federated Metals, Divn. of American Smelting & Refining Co.
- O 60. STEAM TRAPS—"Solving Steam Trap Problems" has been published as a (Please turn to page 16)

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The new Airco 700 Welds It ... from thin metal to 2" plate

Why? Because this new torch is available with a selection of tip assemblies that range all the way from Size 00 through the large No. 10 size.

This wide tip selection makes the Airco 700 suitable for your welding work — from thinnest sheet metal up to sections 2" in thickness. When equipped with a multiflame tip, this torch is tops for silver and aluminum brazing.

Each welding tip is assembled with an individual mixer drilled for that particular tip. In addition to wide operating range, other features of the "700" are: better flame control... perfect balance... and low maintenance cost.

With the addition of a cutting attachment, the Airco 700 can be easily converted to handle general shop cutting work.

If you would like more information about this torch, or a free demonstration right in your own shop, address: Dept. 8468, Air Reduction, 60 East 42nd Street, New York 17, N. Y. In Texas: Magnolia Airco Gas Products Company, Houston 1, Texas. On the West Coast: Air Reduction Pacific Company, San Francisco 4, California.



Headquarters for Oxygen, Acetylene and other Gases... Carbide... Gas Welding and Cutting Machines, Apparatus and Supplies... Arc Welders, Electrodes and Accessories



(Continued from page 14)

quide to users who contemplate the purchase of steam traps or who are called upon to solve trap problems. 36-pages. Contains detailed information on selecting the right size trap, and important buying information. The V. D. Anderson Co.

- ☐ 61. LOADING PLATFORM—Bulletin and line drawing illustrate and describe the Leva-Dock platform for maintaining minimum inclined ramp and smooth connection with truck floor. It compensates for truck floor movement incident to loading and unloading, and is readily adjusted by oilhydraulic power to varying truck floor heights. It eliminates use of plates or bridge ramps. Rotary Lift Co.
- ☐ 62. COMPRESSORS—Compressor Selection Chart, Bulletin L-640-B2, simplifies selection of proper size compressor for average industrial use. The chart is based on normal applications handling air with atmospheric intake pressure. Worthington Pump & Machinery Corp.
- ☐ 63. ELECTRIC HOIST—The Bearcat electric hoist is the subject of Bulletin P-53; hoist has interchangeable spur gears, making it possible to change lifting speeds. Six gear combinations and three models provide eighteen different combinations. Chart shows capacities and hook speeds obtainable. The Harrington Co.
- ☐ 64. PLASTIC SEALING CAPS, SLEEVES
 —"Sealing Caps & Sleeves" is the title of folder CDP-589 describing G-E plastics sealing caps and sleeves. Describing the protective material as tamper-proof seals easily applied, the folder discusses their application in air conditioning, refrigeration, packaging and electrical fields. General Electric Co., Chemical Department.
- G5. SOLDERING TOOL—Bulletin describes a quick-action soldering tool called the Pres-To-Heat, which maker says completes average soldering job in less than two seconds. Complete tool consists of power unit and heating unit. Soldering unit resembles a long-nosed plier with actuating lever on handle; pressure on lever enables operator to hold work securely, and additional pressure causes current to flow through the work, generating instantaneous heat at point of contact. Housing Foundation, Inc.
- ☐ 66. RECTIFIERS—Selenium rectifiers are the subject of Bulletin RDP-112, which points out the limitations as well as the capabilities of selenium rectifiers. It is

designed to aid users to select, buy, and use them properly. Fansteel Metallurgical Corp., Rectifier Divn.

- ☐ 67. SPECIAL PURPOSE FILES—Special file types are the subject of bulletin No. 137 which contains information on When, How and Why to use them for aluminum, babbitt, brass, bronze, die castings, cast iron, mild steels, die making, plastics, etc. Nicholson File Co.
- ☐ 68. PLASTICS—Molded Plastic Trim is title of 8-page bulletin illustrating stove, appliance, gas cock and valve handles, pendants, knobs and controls, and pulls and dials made by The Grigoleit Co.
- ☐ 69. THREADLESS UNION—Sheet describes the Sta-Union, "a threadless, stronger, tighter union for joining stainless steel tubing." It is quick and easy to install, and makes possible the use of light or heavy gauge tubing in place of pipe. It is recommended for working pressures up to 150 lbs. psi. The body of the Sta-Union is stainless steel. Special plastic gaskets are resistant to heat up to 400 deg. F. Steel Products Corp.
- ☐ 70. PROTECTIVE COATING—Protective coating for cold-wet surfaces, Apexior No. 3, is subject of bulletin 1540 which deals with its application to drinking and other water storage tanks, refrigerant condensers, air conditioning equipment and in the marine field. The Dampney Co. of America.
- ☐ 71. COLLAPSIBLE TUBES—Catalog describes Sheffield Process Tubes which are made for a wide variety of products from pure tin, Sheffaloy, lead, tin coated (lead base or core), and aluminum, and also Vinicote inner coated tubes which can be safely specified for many strongly acid or alkaline products, readily leakable oils, greases, and other commodities. The Sheffield Tube Corporation.
- ☐ 72. WATER COOLING NOZZLES—Loose-leaf catalog on water cooling equipment and industrial spray nozzles constitutes practical reference source in design, of cooling systems or the use of nozzles. Nozzles range from 1/6" up to those for heavy industrial washing operations. Binks Manufacturing Co.
- ☐ 73. BATTERY CHARGER—Single circuit battery charger for battery-powered industrial trucks is subject of Bulletin 221. Unit is for charging lead or Edison batteries and is completely automatic. The Electric Products Co.

- ☐ 74. OIL-LESS BEARINGS—Size list No. 21 contains complete listing of all types and sizes of porous bronze and sintered iron bearings which can be made from dies on hand without tooling charge. This 24-page reference book for purchasing agents, engineers and others contains information on tolerances and other data. Bound Brook Oil-Less Bearing Co.
- ☐ 75. REVERSIBLE GAGES—Go and Not Go reversible cylindrical and thread plug gages are the subject of new bulletin. When one end of a gaging member is worn belew size it is simply replaced by the other end. Pratt & Whitney.
- ☐ 76. LUBRICATION—Automatic metered lubrication for the small machine and isolated units of large machines is subject of bulletin 4C. Small capacity lubricators, either automatic or one shot which provide minute quantities of oil at frequent intervals are illustrated. Bijur Lubricating Corporation.
- ☐ 77. COOLING UNIT—VAD (Vertical Air Discharge) cooling units for large scale cooling of water, oil and gas as well as steam and vapor condensing, are the subject of catalog 448 issued by the Young Radiator Co. Units are available in sizes capable of dissipating from 3,000,000 to 15,000,000 btu per hour.
- ☐ 78. BRONZE—Bronze rolled sheet and plate produced from centrifugally cast slabs of Ampco Metal Grade 8 are the subject of Bulletin 94 issued by Ampco Metal, Inc. Sheets are sound, flaw-free and uniform throughout. Chart shows physicals of Grade 8 annealed sheet at wide range of temperatures.
- ☐ 79. CLEANING, SANITATION—"Cleaning and Sanitation Manual for Food and Beverage Industries" covering 15 major food and beverage processing fields, has been released by Turco Products, Inc.
- □ 80. TEMPERATURE, HUMIDITY, ALTITUDE—New 32-page catalog illustrating a complete line of temperature, altitude and humidity simulating units is available from Bowser, Inc., Refrigeration Divn. Latest types of test cabinets and industrial processing units are illustrated and described.
- 81. COUPLINGS Flexible-gear type couplings are covered by bulletin issued by American Gear & Mig. Co.
- ☐ 82. UNIVERSAL JOINTS—"White-Line" Universal joints are the subject of bulletin issued by American Gear & Mfg. Co.
- 33. GAS ANALYZERS Industro gas analyzers are the subject of Bulletin 213, Burrell Technical Supply Co. Analyzers are for the rapid control analysis of gas mixtures comprising any or all of the following: carbon dioxide, carbon monoxide, oxygen, methane, hydrogen, and nitrogen.
- ☐ 84. AUTOMOTIVE CLEANING—How to Cut Automotive Cleaning Time and Costs is subject of booklet issued by Turco Products, Inc.
- ☐ 85. MOVABLE ASBESTOS Walls—"Transite Movable Asbestos Walls" is the title of 24-page brochure issued by Johns-Manville. Photos show varied installations in comercial, industrial and institutional buildings. Text provides construction, data and specification suggestions.

(Please turn to page 19)

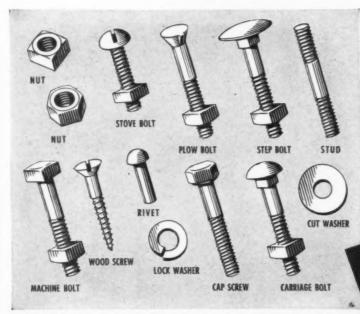
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If there are items in the New Products section (pages 150-180 on which you want more information, list them on the Reader Service card on this page, with

page number and a simple identification. For example:

Page No. 156

Product or Company Radial Saw

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Page No. 196 290

Product or Company Valves

Assoc. Spring

If there are one or more items in the listing of new catalogs and bulletins (pages 12-16) of interest to you, jot them down on the lower section of the Reader Service Card as follows:

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PARTIAL LIST OF LITERATURE OFFERED ADVERTISERS IN THIS ISSUE

the numerous catalogs, bulletins, and descriptive literature of value to Purchasing Agents in maintaining their product and source files are the following which are offered by advertisers in this issue.

(See advertisers' index, page 336)

PLUG VALVES—Lubricated plug valves are the subject of Catalog 46L. These valves give better control when handling acids, condensates, dyes, oils, solvents, slurries and similar "troublesome" liquids. Walworth.

WIRE SCREEN--Catalog W-905 describes screens designed to lick corrosion problems. Various meshes available in stainless steel, copper, brass 80-20, monel, aluminum, bronze 90-10, and two types of Hastelloy. John A. Roebling's Sons Co.

EMPLOYEES UNIFORMS—Catalog just re leased, 64 pages, is termed the Blue Book of Uniforms. It presents new styles, new fabrics, new uniform ideas, and new colors. Angelica Jacket Company.

ALUMINUM FASTENERS-Your letterhead request will bring you samples of Alcoa fasteners-sheet metal, wood and machine screws, nuts, bolts, washers, cotter pins. Also booklets on use of fasteners, and welding, or brazing aluminum. Aluminum Company of America.

TRACING CLOTH - Generous working samples of tracing cloth are yours for the asking. Arkwright Finishing Co.

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CASTERS—Catalog K-38 describes Bond all-steel casters for heavy duty service. The No. 40-A is pressure lubricated and swivels easily on hardened ball races. Casters are designed for wide variety of working conditions. Bond Foundry & Machine Co.

SCREWS—Catalog 48 details Elco screws which are featured by snug fitting threads, true slots, and heads which center and draw up tight. Elco Tool and Screw Cor-

BUSINESS-ACCOUNTING RECORDS-For \$1.00 you can procure copy of new 100page catalog which describes and illustrates in color the full National line of business records, record-keeping sories, and special features. Blank Book Co.

COATED ABRASIVES-"Facts About Backstand Belt Grinding and Polishing" is subject of booklet available without cost from Armour and Company.

ELECTRIC FANS Bulletin T-132 gives detailed information about electric fans for "breeze conditioning" office, shop, and other interiors. The Emerson Electric Manufacturing Co.

DOCK LIFTS Folder describes hydraunc leveling ramps to adjust level of the leading dock to the truck height; variance of 20" quickly adjusted; dock ramps tilt to meet truck body. The Wayne Pump Company.

ELECTRIC DRILLS Catalog on complete line of electric portable drills which enables you to select the "right drill for every job" is available from The Black & Decker

WIRE ROPE—"Valuable Facts About the Use and Care of Wire Rope" is title of booklet that tells how to maintain operating standards and get the most out of wire rope applications. American Steel & Wire

STAINLESS STEEL - Handbook contains complete easy-to-use data important to fabricators and buyers of every type of stainless steel. A. R. Purdy Company.

BUILDING-Manual 808 describes corrugated Careystone corrugated asbestoscement sheets for walls, roofs, partitions, which is said to make for substantial savings over conventional constructions. The Philip Carey Manufacturing Co.

STEEL STRAPPING-"Savings in Shipping is case history booklet telling about big savings in packaging costs and other sav ings made possible by the use of steel strapping. Acme Steel Company.

MATERIALS HANDLING - Catalog tells about the Transporter, a brawny electric truck that handles 6000 lbs. with touch-ofthumb ease, and presents money-savings facts on materials handling. Automatic Transportation Company.

These, or any other bulletins, catalogs, etc., offered on the advertising pages of this issue, may be requested through PURCHASING's Reader Service. Simply indicate the page number of the advertisement and the company or product on the Reader Service card below.

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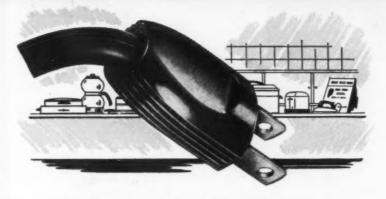
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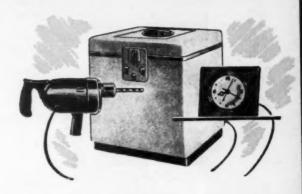
COLORFUL EYECATCHER ADDS EXTRA APPEAL

To help build sales for your product, General Electric cord sets are now available with the tough, attractive G-E "400" plug. Cord sets displaying this colorful new plug give your product that little extra up front where the competition is the keenest—right on the counter—at the point of sale.

- · Red, gray, black, or brown color
- · One-piece plastic, molded-on-cord
- Strong, solid brass blades
- · Smooth, high-glass surface
- Bell-mouth opening at heel end permits free movement, increases cord life.

Teamed with the new General Electric Preen-X heater cord, the "400" plug makes an attractive cord set for heating appliances. When used with other cords in the General Electric line, this "400" plug offers an opportunity to add a distinctive feature to electrically-powered tools, machines, and appliances. G-E cord sets with the "400" plug provide an extra talking feature—an extra selling point.

Why not see what a General Electric cord set with a "400" plug can do for your product? Just check "A" in the coupon.



SIMPLIFY YOUR SELECTION OF POWER SUPPLY CORDS

For household appliances, for machine-shop tools—for light-, medium-, and heavy-duty equipment—simplify your problem of cord selection by standardizing on General Electric Flamenol* cords.

These tough cords have what it takes to withstand the effects of household or machine-shop abuse. They have a smooth, easily-cleaned, thermoplastic jacket that's as hard-wearing as it is good-looking. It is resistant to water, oils, alkalies, sunlight, and acids, yet it's flexible, strong, and easy to handle.

Do you have a power cord problem—would you like to know more about General Electric portable cords? Just check "B" in the coupon below.

HERE'S THE NEWEST HEATER CORD IDEA

Consumer-tested and approved — this new General Electric Preen-X heater cord offers designers something excitingly new in a heater cord—with practical advantages over old-type heater cords. This amazing new cord is of rip cord construction, with one conductor marked by an identifying rib. It's easy to rip, easy to strip, easy to connect. It's available in either black or brown color, and is listed by Underwriters' Laboratories, Inc.

Preen-X heater cord defies abrasion and annoying kinking—actually has more than ten times the abrasion resistance of ordinary, braided cords.

Preen-X heater cord is water-, oil-, and grease-proof. It's good-looking, too—the smooth, flexible jacket rejects lint, resists soiling.

For more information on this brand-new, General Electric cord—Preen-X heater cord—check "C" in the coupon.

General Electric Company, Section L4-470 Construction Materials Department Bridgeport 2, Connecticut

Please send me, free, the items checked below:

- A 🗌 Information on the General Electric "400" plug
- B Information on General Electric portable cords
- C | Information on new General Electric Preen-X heater cord
- D | Information on the subject attached

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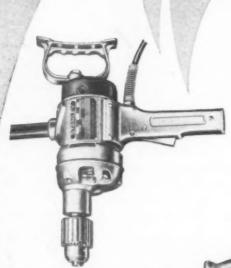
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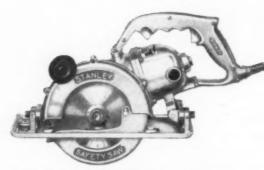
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No. 310A ELECTRIC HAMMER— 11/8" capacity . . . Drills, chips, channels, chisels, scales, vibrates . . . any work requiring hammer action.

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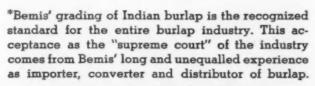
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Weel, it's wise and thrifty to deal with folks who really know bur-r-rlap*...folks you know you can depend on. So for whatever grade you need...look to Bemis!

Another important point... There's a Bemis plant very near you for better service wherever you are.



BEMIS TITE-FIT TUBING saves time and money for those who use burlap for packaging odd-shaped and bulky products. This versatile tubing stretches in both directions for a neat, close-fitting cover. World's largest importer of Burlap

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HIGH TENSILE STEELS





ARCOS low alloy high tensile steel electrodes were again used to weld this 45 cubic yard dipper when Marion Steam Shovel Company along with the Hanna Coal Company undertook to make this new world's largest shovel.

ARCOS ability to provide the electrodes and to meet the problems involved in welding the low alloy high tensile steels has helped fabricators on many a difficult high tensile job.



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Nickend 1	62- 69,000	70- 80,000	25-30	50-60
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To help you maintain these operating standards, we have prepared a booklet entitled, "Valuable Facts about the use and care of Wire Rope." Every key man on your operating staff should be supplied with this much needed information. Send the handy coupon for your copy.

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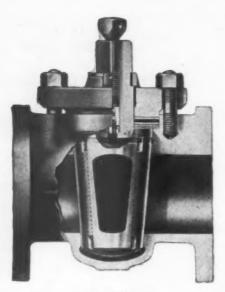


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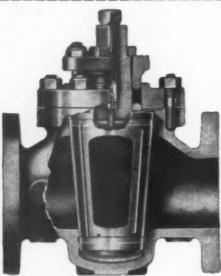
American Steel & Wire Co Rockefeller Building, Dept. Cleveland 13, Ohio

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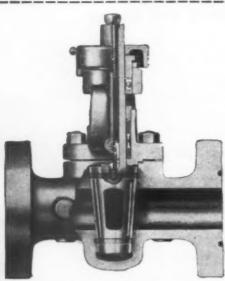
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Single Gland Type



Regular Gland Type



Ball Bearing Type

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USE WALWORTH LUBRICATED PLUG VALVES

When handling acids, condensates, dyes, oils, solvents, solutions, slurries and hundreds of similar "troublesome" liquids, you get better control, more dependable service and lower operating costs with Walworth Lubricated Plug Valves.

These valves have proved their ability to give easy operation . . . fast action . . . tight shut off ... greater protection against corrosion. Turning is smooth and easy; just a 1/4 turn from fullopening to full-closing. Moreover, Walworth Lubricated Plug Valves are tightly sealed against leaks - whether open or shut.

Walworth Lubricated Plug Valves are available in sizes 1/2" to 26" for pressures from 125 to 5,000 psi, and for vacuum requirement. For further information about Walworth's Complete Line of Lubricated Plug Valves, see your Walworth distributor or write for Catalog No. 46L.

WALWORTH valves and fittings

60 EAST 42nd STREET, NEW YORK 17, N. Y.



Service Requirements—Not Price Determine Republic Hose Quality



Tower Pneumatic Hose

Tower Pneumatic Hose, largest seller in the Republic line, has tough brown cover, oil resistant tube, and is extremely flexible. Sizes 3/8" to 1-1/2"—two and three braid.

You will be wise to consult an experienced salesman when you are buying hose, since the many types of available hose are manufactured in different grades. For practically every need, Republic Rubber Division makes a construction of hose designed for the specific application. Experience has not only taught us how to build each type and grade, but experience has also proved which hose delivers the best results under given conditions.

Republic Hose is sold exclusively by distributors of industrial supplies. Through years of experience, these distributors have gained the knowledge to recommend hose which will serve your requirements with greatest satisfaction. Write or mail the coupon for the name of the Republic Distributor in your area.

REPUBLIC RUBBER DIVISION

Lee Rubber & Tire Corporation, Youngstown, Ohio Lee Deluxe Tires & Tubes Conshohocken, Pa.

REPUBLIC RUBBER DIVISION

HERE'S WHAT REPUBLIC RUBBER DISTRIBUTORS DO FOR YOU



E. D. Knight, President Virginian Electric Inc. (Distributor) Charleston 30, W. Va.

It costs no more to process a \$1000 order through your books than a \$10 order. Virginian Electric and hundreds of other Republic distributors of industrial supplies can help you along these lines, because a wide variety of products can be obtained from them with one order—checked, billed, paid for—all in one operation.

Give your orders for conveyor belting, transmission belting and hose to your Republic distributor of industrial supplies, and include other items with them. It's another way to save.

Republic Rubber Division sells its conveyor belting, transmission belting and hose exclusively through distributors of industrial supplies, and Republic believes it can serve you best through these experienced distributors. Write or send the coupon for the name of the Republic Distributor in your area.



In reply to your letter or coupon, Republic will send you a folder showing 12 ways to save.

WHO REPRESENTS REPUBLIC IN MY AREA?

REPUBLIC RUBBER DIVISION

Lee Rubber & Tire Corporation Youngstown, Ohio

Name and Title

Firm

Address

City State

NOW! 13 REASONS

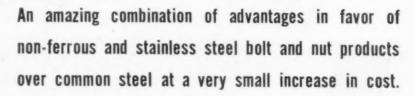
FOR USING HARPER EVERLASTING FASTENINGS

- 1 RESISTANCE TO RUST AND CORROSION
- 2 RESISTANCE TO HIGH TEMPERATURES
- 3 NON-MAGNETIC
- 4 NON-SPARKING
- 5 RE-USABLE
- 6 ATTRACTIVE APPEARANCE

- 7 EASY TO CLEAN
- 8 HIGH STRENGTH
- 9 LONG LIFE
- 10 LOWER ULTIMATE COST
- 11 RESISTANCE TO FATIGUE
- 12 EASY TO PLATE OR FINISH
- 13 RESISTANCE TO ABRASION AND WEAR



ONLY I REASON FOR USING COMMON STEEL-LOWER FIRST COST



6000 INDIVIDUAL ITEMS IN STOCK

The widest assortment of bolts, nuts, screws, washers, rivets and accessories in Brass, Bronzes, Copper, Monel and Stainless Steels available from one source . . . large quantities of each. Specials made to order from ample reserves of raw materials.

Write to General Offices, Dept. F for 134-page Color Catalog giving blue print drawings, dimensions, threads, heads and sizes of each item. Special Stainless Steel Catalog also available upon request.



THE H. M. HARPER COMPANY

General Offices and Plant MORTON GROVE, ILLINOIS (Suburb of Chicago)

New York Office and Warehouse 200 HUDSON STREET - NEW YORK 13

BRANCH OFFICES: Atlanta, Cambridge, Cincinnati, Cleveland Dallas, Denver, Detroit, Grand Rapids, Los Angeles, Milwaukee, Philadelphia, Pittsburgh, St. Louis, San Francisco, Seattle-Toronto (Canada)



THESE PLANTS BROUGHT PRESENT EQUIPMENT

UP-TO-DATE with MICRO Precision Switches!

In modernization of present plant equipment, the use of MICRO precision switches has solved difficult problems for hundreds of industrial plants.

Use of MICRO precision switches has increased machine capacity, reduced repairs and work spoilage, and made it possible for one man to supervise the operations of more than one machine. The applications shown here are but a few of the thousands of uses for these accurate, precise, dependable switches.

MICRO precision switches are provided with sturdy metal housings that are resistant to shock, dust and moisture. MICRO SWITCH sales engineers, experienced in solving control problems in every type of industry, are conveniently located to help you with advice on the most practical and economical method of making your machinery more productive. Write to the MICRO SWITCH branch nearest to you, or to MICRO SWITCH, Freeport, Illinois.



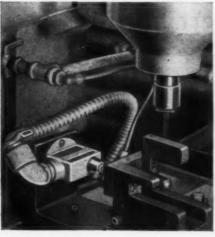
MICRO SEALED TYPE DIE CAST ENCLOSED PRECISION SWITCH

A popular design with plant managers, foremen, time study men and others faced with the need for modernizing plant machinery.



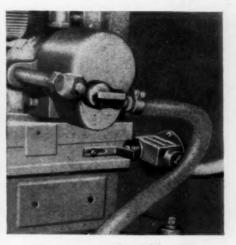
How to Save Costly "Slack" Trouble in Wire Winding

This sealed type MICRO precision switch is mounted on a device which allows this wire-winding machine to operate only when the wire passing through the roller is taut. Its installation completely eliminated broken needles, broken yarn and lost time which had previously developed whenever the wire became "slack." As soon as the "slack" is relieved, the wire tightens against the roller, and the switch starts the winding machinery in operation.



How to Save Time on Tapping Operations

Here a sealed type MICRO precision switch is used to assure proper positioning for tapping operations. It makes sure that the machine will not start unless the work has been properly positioned in the jig. Use of this switch has saved many rejects, reduced tap breakage, and saved overall tapping time. This type of arrangement is easily installed by a maintenance man or plant engineer.



How to Handle More Than One Machine At A Time

An arm on the carriage of this hobbing machine contacts a sealed type MICRO precision switch at the end of its travel. The switch stops the machine automatically, and turns on a light that signals the operator. He places new work in the machine, sets it in operation and goes about his duties at another machine. MICRO precision switches provide many ways to save time with present equipment.



MICRO . . . first name in precision switches

BRANCH OFFICES: Chicago • New York • Boston • Cleveland • Los Angeles

SALES REPRESENTATIVES: Portland • St. Łouis • Dallas • Toronto

INSUROK 64 RICHARDSON

Dependable names in plastics

BIG ENOUGH--LITTLE ENOUGH

That's the way a friend recently spoke about the size of The Richardson Company.

His reasons are factors you may want to consider in selecting a supplier of plastics materials and services.

Here's how he put it:

BIG ENOUGH to have ALL of the facilities for big runs of (1) Laminated INSUROK sheets, tubes and rods, (2) punched parts, (3) fabricated parts and (4) Molded INSUROK products (molded of Durez, Plaskon, Melamine, Bakelite, etc.) LITTLE ENOUGH to give personal and individual attention to EVERY customer and his problem.

Our size is just one of many factors that work in your favor when you turn to Richardson for plastics. Other important benefits are ready to go to work for you . . . such as experience, seasoned laboratory and production talent, competent production skills and a genuine interest in helping you improve your product and control production costs.

Why not discover for yourself what Richardson offers in the way of plastics materials and services?

INSUROK is a registered trade-mark of The Richardson Company The RICHARDSON COMPANY

GENERAL OFFICES: LOCKLAND, OHIO

FOUNDED IN 1858

Sales Headquarters: MELROSE PARK, ILLINOIS

GLEVELAND - DETROIT - INDIANAPOLIS - MILWAUKEE - NEW BRUNSWICK. (N. J.) - NEW YORK - PHILADELPHIA - ROCHESTER - ST. LOUIS



TEMPERATURES TWICE THE MELTING POINT OF STEEL





Industry Uses These Temperatures Today . . . with Norton-Developed Refractories

TEMPERATURES as high as 4300° F. for the sintering of carbides . . . up to 4700° F. in the manufacture of acetylene . . . even up to 5500° F. in certain research projects . . . that's the way industry is using heat today. And to handle this heat it is turning to Norton.

Long the acknowledged leader in the abrasive industry, Norton is also the pioneer in the development of refractories for handling today's super temperatures . . . pure oxide refractories of thoria, zirconia, beryllia, fused magnesia (MAGNORITE*) and fused alumina (ALUNDUM*).

Other types of Norton refractories are handling heat for many industries—chemical, metal, ceramic, power generating and gas generating.

*Trade-mark reg. U. S. Pat. Off.



The main Worcester plant of Norton Company—world's largest producer of abrasive products

NORTON COMPANY

WORCESTER 6, MASS.

(Behr-Manning, Troy, N. Y. is a Norton Division)



Since 1930, when Wagner started manufacturing steel-frame drip-proof motors, they have been proved—by years of hard usage in industry after industry.

Today this time-tested design is available in polyphase motors through 326 frame size. The motor frames are formed of heavy rolled steel, shaped to accurately center the stator core and to provide passages for adequate ventilation. An auxiliary fan draws in air through the openings in the front endplate, forces it through these passages and out through the endplate openings on the drive end.

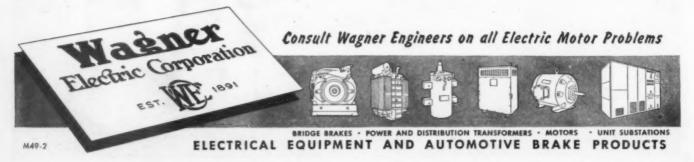
Heat is effectively carried off from all parts of the motor.

These motors are available with either sleeve or ball bearings. They are completely drip-proof when mounted in the normal horizontal position, and by rotating the endplates are still drip-proof in the sidewall or ceiling horizontal positions.

Bulletins give full information on the complete line of Wagner Motors. Twenty-nine branches, located in principal cities, are ready to assist you whenever you have a motor problem. In addition, almost 500 authorized motor repair shops provide speedy, nationwide service facilities.

Wagner Electric Corporation

6360 PLYMOUTH AVE., ST. LOUIS 14, MO., U. S. A.



Now the World's Greatest Lubrication
Knowledge, Engineering Service and Famous

ALE YOUR

Combine to Quality Products Combine to ...

BIGGER!

This supercalender rolls out high-quality paper that is sold for a profit. So, the mill really rolls out dollars. The more it produces, the bigger the bankroll.

That's why leading paper mill operators make certain of more continuous production by applying the right lubricating oil. They're using a special Gargoyle circulating oil that has been still further improved.

The same principle applies to your moneymakers, the machines in your plant. The more your machines produce, the more you make. Farnous Gargoyle Oils, backed by our 83 years' experience, will help keep them on the job-help you build your bankroll.

SOCONY-VACUUM OIL CO., INC., and Affiliates: GENERAL PETROLEUM CORPORATION MAGNOLIA PETROLEUM CO.

This drawing prepared with the cooperation of Appleton Machine Company

GARGOY Lubricants

Rely on SOCONY-VACUUM
Correct Lubrication



SAVE MONEY and get
BETTER PIPING by using the

MIDWEST

REDUCING ELBOW



Instead of a Standard Elbow and a Reducer

3 Welds Required

STANDARD

ELBOW AND REDUCER

The Midwest Reducing Elbow saves more than a third of the welding when used instead of a standard elbow and reducer. In addition to a substantial saving in time and money, it provides much neater appearance and insulation is easier. The gradual reduction, smooth curve and absence of abrupt neck reduce the pressure drop and turbulence. Center-to-end

dimensions are the same as for ASA standard elbows.

All the advantages of Midwest Standard Elbows are to be found in Midwest Reducing Elbows . . . unusual dimensional accuracy and uniformity, stress relieving, beneficial effect of working metal in compression, etc.

The Midwest Reducing Elbow is only one of many fittings developed by Midwest to reduce the cost and improve the quality of welded piping. You will find it advantageous to get in touch with the Midwest Distributor near you whenever you need welding fittings.

MIDWEST WELDING FITTINGS Improve Piping Designs and Reduce Costs













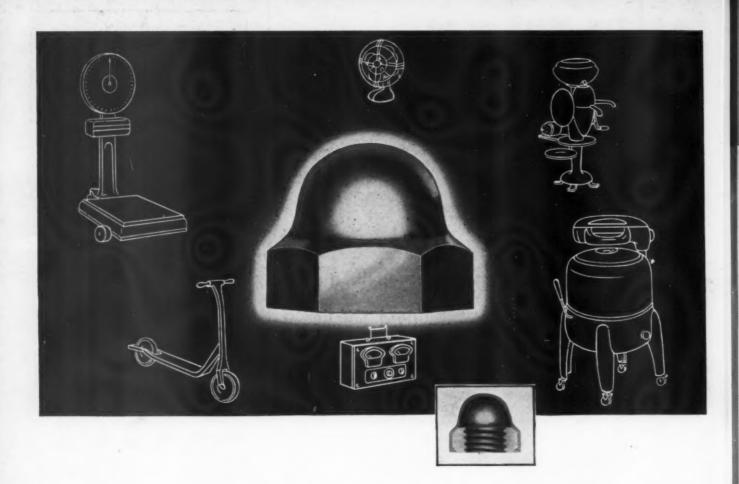
REDUCING-ON-RUN TEES



MIDWEST PIPING & SUPPLY COMPANY, Inc.

Main Offices: 1450 South Second Street, St. Louis (4), Mo. Sales Offices: New York (7), 30 Church St.

Chicago (3), 79 West Monroe St. • Los Angeles (33), 520 Anderson St. • Houston (2), 229 Shell Bldg. • Tulsa (3), 533 Mayo Bldg. • South Boston (27), 426 First St. • Distributors in Principal Cities,



FERRY PATENTED ACORN NUTS

Add Sales Appeal

These ornamental Ferry Patented Acorn Nuts cover unsightly bolt ends. They fit securely, and give that finishing touch of quality to almost any product.

They consist of a steel hexagon nut fitted snugly into a steel shell. Supplied in materials—steel and brass covers with steel inserts with plain and various platings and finishes such as: plain, cadmium plated, nickel plated, and chrome plated. Sizes: %", 34", 15%" across the flats; tapped ¼" to 5%" inclusive.

Dress up and enhance the appearance and value of your assemblies with these attractive, ornamental Ferry Patented Acorn Nuts. A small investment in these nuts often pays for itself many times over. Let us send you folder and prices.

The FERRY CAP & SET SCREW Co. 2165 SCRANTON ROAD CLEVELAND 13, OHIO

Pioneers and Recognized Specialists Cold Upset Screw Products since 1907

CAP AND SET SCREWS . CONNECTING ROD BOLTS . MAIN BEARING BOLTS . SPRING BOLTS AND SHACKLE BOLTS . HARDENED AND GROUND BOLTS SPECIAL ALLOY STEEL SCREWS . VALVE TAPPET ADJUSTING SCREWS . AIRCRAFT ENGINE STUDS . ALLOY STEEL AND COMMERCIAL STUDS . FERRY PATENTED ACORN NUTS

An Important Cost Saver!



for templates, cutting tools, gages, test tools, machine parts and many other items . . .

Brown & Sharpe GROUND FLAT STOCK

SAVE TIME . . . SAVE MONEY

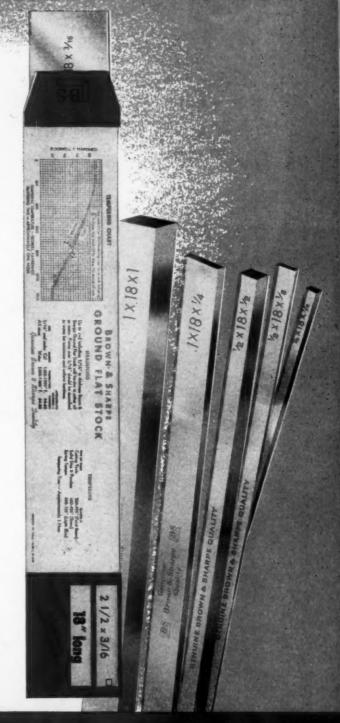
Here's one way to beat high costs. By making small parts from stock accurately pre-ground to size, you can avoid expensive, difficult grinding operations. What's more, you save man-hours and machines for more profitable work.

Brown & Sharpe Ground Flat Stock is accurate to within .001" in thickness. It is selected first-quality tool steel, annealed uniformly by a special process to make machining easy. Up to and including 3/16" in thickness, hardens in either oil or water to 64-66 Rockwell C. Pieces over 3/16" should be quenched in water for full hardness.

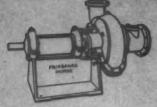
Brown & Sharpe Ground Flat Stock in 18" lengths is available in sizes that cover most requirements. Get an adequate supply from your Brown & Sharpe distributor. Brown & Sharpe Mfg. Co., Providence 1, R. I., U. S. A.

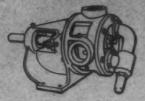
> Regular stock sizes include 13 different thicknesses from 1/64" to 1/2"...widths up to 6" ... also square sizes. Individually packaged in clean, protective envelopes marked with size and heat treating instructions. Easy to store. Easy to handle.

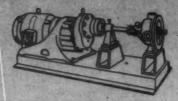
We urge buying through the Distributor



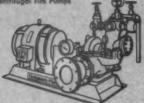
BROWN & SHARPE

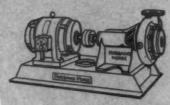


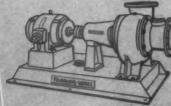




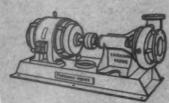














for Pumps... THAT DELIVER

plus performance lasting dependability unsurpassed economy

The Fairbanks-Morse Pump Dealer is your best bet for assistance in pump selection...for reliable service. Fairbanks, Morse & Co., Chicago 5, Ill.





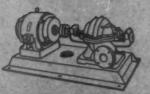
FAIRBANKS-MORSE

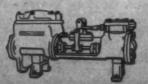
A name worth remembering

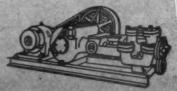
DIESEL LOCOMOTIVES + DIESEL ENGINES + PUMPS + SCALES MOTORS + GENERATORS + STOKERS + RAILROAD MOTOR CARS and STANDPIPES + FARM EQUIPMENT + MAGNETOS



Doep Well Turbine Pumps







& Cover Side-Pet Duplex Power Pum



QUAKER HOSE IS VACUUM "PRE-TESTED" FOR STRENGTH OF WALLS . . . DURABILITY UNDER MOST SEVERE USAGE!

If it's Quaker Hose, it must be right...must meet the most rigid "pre-tests" before it is shipped for actual usage. Scientific pre-tests that subject hose to more severe usage than will ever be encountered in industry are conducted right in Quaker's plants.

One of these steps in "pre-testing" Quaker Hose is shown above. A vacuum that puts Quaker Suction Hose through the torture-test to provide rubber products for industry that are second to none in quality. Here greater suction is built up than will ever be encountered in actual operation.

This is only one of the eighteen rigid tests that raw materials and finished products must pass before receiving the Quaker stamp of approval. Yes, "pre-testing" of Quaker belting, hose and packings provides quality and long service... assures worthwhile dividends for you through less time-outs for maintenance, higher efficiency, lower operating costs.

PACKINGS THAT PRESERVE POWER



BELTS THAT BOOST POWER

Quaker's complete line of transmission and conveyor belting is pretested and serviceproved to provide a sure-grip . . . slip less . . . save power.



QUAKER RUBBER CORPORATION

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Western Territory

QUAKER PACIFIC RUBBER CO. • San Francisco 10 • Los Angeles 21 • Seattle 4



N B B B R B

Mechanically.

Strokes, revolutions, pieces, volumes, lengths . . . or other units of performance and production . . . can be counted by Veeder-Root Mechanical Counters like this new General-Purpose No. 1260. This direct-reading, streamlined counter counts up to 1,000,000 . . . then resets (unless you want to reset it sooner) with one turn of knob. And it's compact, so it can be built into most machines and products, to add utility and marketability.

IL O D D D V.

Magnetically

To report machine output direct from plant to office . . . or to count units of a size or weight that makes them tough to count mechanically . . . count on these new Veeder-Root Reset Magnetic Counters, No. 1205 for AC, No. 1248 for DC. Easy to install on regular light circuit . . . widely used with "electric eye." And they may be grouped on panels, at any distance from the machines they report on.

Manually...

To count people, poles, shrubs, bloodcorpuscles, cars, ticket-buyers . . . or anything that can't be counted mechanically or magnetically . . . count on this No. 1023 Hand Tally that fits both hand and pocket. To count one, press thumb-lever once. When count is complete, turn reset knob, start over from zero. Ends errors from memory-count and pencil tallies.

These are only 3 of the scores of types of Veeder-Root Standard and Special Counters. Most likely you, too, can count on Veeder-Root, to your profit. Write.

VEEDER-ROOT INCORPORATED

HARTFORD 2, CONNECTICUT In Canada: Veeder-Root of Canada, Ltd., 955 St. James St., Montreal 3.

In Great Britain: Veeder-Root Ltd., Kilspindie Rd., Dundee, Scotland

a blade like this

boosted cutting speed

There's good reason why a change to Atkins "Silver Steel" Powersaw Blades so frequently results in sensationally improved cutting performance.

The Atkins "Curled-Chip" Tooth form, with its inward curved face, actually lifts the chip free in a smooth, continuous curling motion. Tooth-dulling heat and power-wasting friction are reduced to a minimum. In addition, these blades are made of Atkins own special analysis "Silver Steel" — the steel that was developed to take an edge and hold it through record cutting periods and consistently heavier feeds.

Why not ask your industrial distributor to arrange a demonstration on your own machines and work?

See your Industrial Distributor First



Material: 6" dia. No. 94100 s (equivalent to Temkin No. 5) Cutting time with previous blade: 13 min.

Cutting time with Atkins blade: 8% min. Increase in cutting speed: 53%

ATKINS "Silver Steel" Hand Hacksaw Blades

The blade that takes the "hack" out of hacksawing. Fast-cutting, easy to work with. Made of "Silver Steel", with tough rugged teeth that hold up without breaking or dulling for many cuts through toughest metals. Ask for the blades with the "Blue Ends".





Silver Steel" SAWS

Home Office and Factory 402 S. Illinois Street, Indianapolis 9, Indiana Branch Factory: Portland, Oregon

MAKERS BETTER



AO 5X138 GLOVE—Steel stapling includes (1) Index finger to crotch of thumb (2) Second, third and fourth fingers to palm (3) Thumb patch. All seams on face of glove steel sewed. 4 inch gauntlet.



AO 1674 MITTEN — There's DOUBLE the wear from this reversible mitten which may be worn on either hand. All seams steel sewed.

3 Handy Handfuls
of Steel-Stapled
SERVICEABILITY

The 5X138 Glove, 1674 Mitten and 1201 Hand Pad shown, are typical of the AO line of Steel-Stapled products for handling rough stock such as steel sheet, scrap, wheel castings, etc. Steel stapling at vulnerable places makes them almost as tough as the materials they handle. In design they offer everything possible for flexibility and comfort in durable chrome-tanned cowhide. Your nearest AO Safety Representative has these proven-in-use products.

AO 1201 HAND GUARD — In foundries, steel mills and where rough material is handled, this light, comfortable Hand Guard is a "natural." It can be put on and removed in a jiffy and when worn over light-weight gloves gives them added life. Open back, well protected thumb. Leather patch steel-stapled to palm provides added reinforcement.

American Optical

Safety

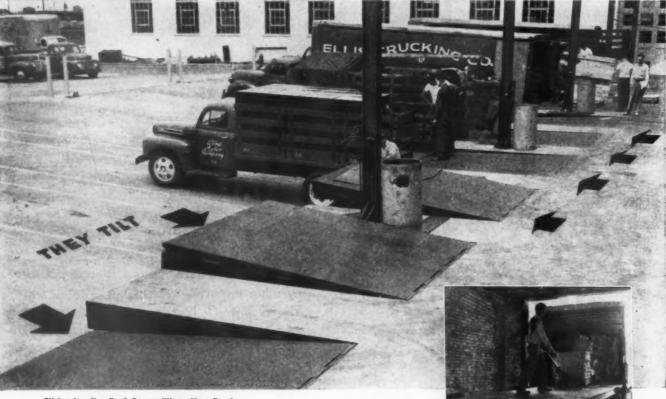
Division

SOUTHBRIDGE, MASSACHUSETTS • BRANCHES IN PRINCIPAL CITIES





CUT "LOADING TIME



Tilting Loading Dock Ramps Tilt to Meet Truck Body. Operated by Hydraulic Lifts.

Standard Wayne Platform Lift Itself Becomes Loading Dock.



DOCK WAYNE LOADING

YOU CAN save time and money with Wayne Hydraulic Leveling Ramps to adjust the level of the loading dock to the truck height. Material on skids can be directly transported into the truck body over a level path. A variance of as much as 20 inches in the height of truck bodies may be instantly adjusted by merely turning a valve. Users say: "Cuts loading time in half." . . "As good as doubling dock facilities."



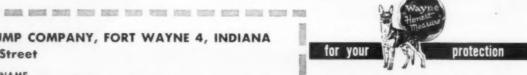
SEND FOR ILLUSTRATED FOLDER

Use the coupon below to get all the facts on this new plan to cut costs at the loading dock. No obligation.

THE WAYNE PUMP COMPANY, FORT WAYNE 4, INDIANA **517** Tecumseh Street

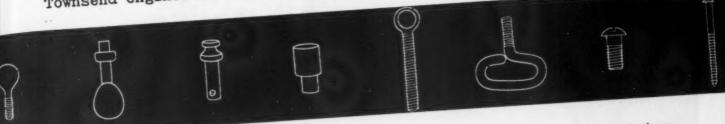
Please send folder on time-saving Wayne Leading Dock Lifts and give us some idea of the cost.

NAME	
ADDRESS	
CITY	STATE

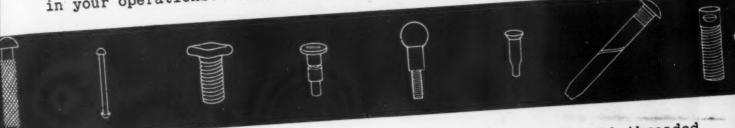


NATIONWIDE ERVICE

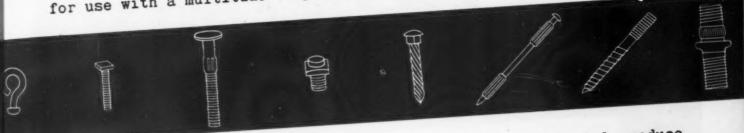
INDUSTRIAL AIR COMPRESSORS . PUMPS . POWER WASHERS Townsend engineered fasteners and parts will save you time and money



in your operations. Their economy has been proved in many industries



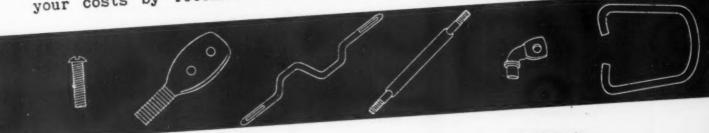
for use with a multitude of products where cold headed and roll threaded



items are applicable. Townsend engineers will be glad to help reduce



your costs by recommending the best standard or specially designed

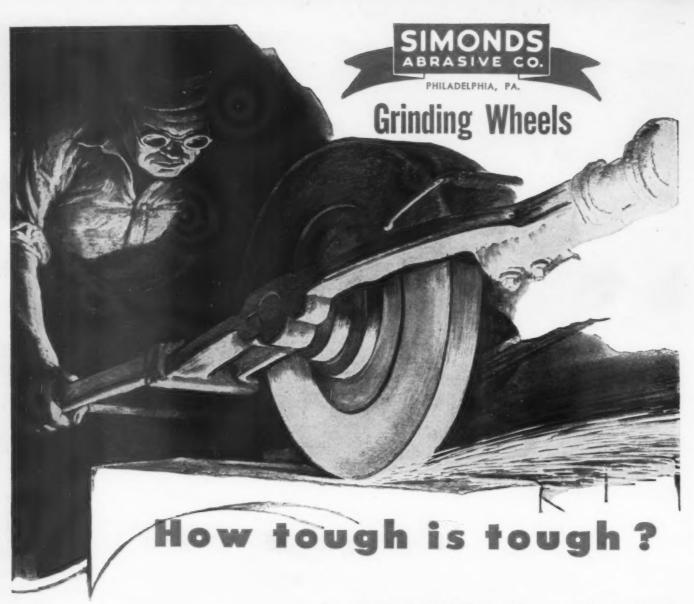


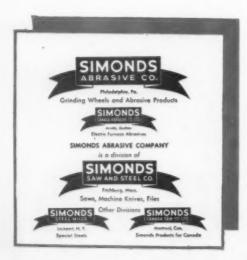
fasteners and parts for your products. Call or write today to:



(Parts shown one-half size)

New Brighton, Pa. Chicago 38, Ill.





A grinding wheel is tough . . . plenty tough when it takes the severest operating use at 9,500 surface feet per minute . . . yet cuts fast and stands up to give you lowest wheel cost per pound of metal removed.

That's what you get from Simonds Abrasive Co. Snagging Wheels for cleaning castings and billets... as well as from other kinds of Simonds Abrasive Wheels used in the precision grinding field.

Send for your copy of our Grinding Wheel Data Book giving complete information including recommendation tables and address of nearest distributor equipped to serve you locally.

SIMONDS ABRASIVE COMPANY, PHILADELPHIA 37, PA. DISTRIBUTORS IN PRINCIPAL CITIES

Shown here is one view in the spotless modern plant where Swift's Animal Protein Colloid is made. Operation is continuous, automatic... the product is "untouched by human hands," not contaminated by foreign substances.

Investigate this Modern Process Agent:

Swift's Animal Protein Colloid*

made from an exclusive Swift Process

Does your manufacturing process

require . . . 1. An emulsifier?

2. A flotation agent?

3. A gel structure?

4. A settling agent?

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7. A carrier of pigments?

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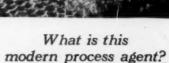
11. A flocculating agent?

12. A clarifying agent?13. A filtering agent?

14. A stiffening agent?

15. A mordant?

This modern process agent, Swift's refined Animal Protein Colloid, has properties which may be employed in a wide number of processes. Even though you have used other processing agents, be sure you investigate Swift's Animal Protein Colloid now. It has unusual properties. It may meet the requirements of your present operations or help in developing new ones.



Swift's Animal Protein Colloid is made by an exclusive Swift process. Protein liquor is extracted from bones and highly concentrated. This pure liquid falls on a bed of dry finished product which adheres evenly to the droplets. Then, by continuous and automatic schedule, these droplets travel through driers and are milled and screened. This whole operation is under precise synchronized control and is completed in relatively short time.

The result is a uniform granular form that goes into solution rapidly. It's a purified product, light amber in color.

Because plant and machinery are kept spotlessly clean—the finished product does not touch material which can contaminate it with foreign substances... because of the precise control possible with Swift's exclusive process, Swift can bring you this *superior* processing agent. And Swift's Animal Protein Colloid has the same high quality and uniform characteristics the year 'round.

Swift's technical service yours, investigate now

Write or phone for one of Swift's special representatives. He will call and discuss Swift's Animal Protein Colloid with you. This process agent may be just what you are looking for. Write to:

Swift & Company

*Commercially high quality bone glue.

4119 Packers Avenue, Chicago 9, Illinois



Shh...am I too early?

YES, even though Christmas is December 25th as usual, this year's package and promotion plans are more important than ever. That's why more and more concerns are consulting OLD DOMINION today.

Retailers want the new individualized package wraps. Consumer product manufacturers want sparkling new sales-worthy display packages. Shippers want a sure supply of OLD DOMINION "Engineered for Travel" corrugated cartons. Yes, our design and packaging engineers are working on dreams and tinsel now so you'll have a Merry Christmas next year. Why not write for "Christmas Packaging Samples" — Dept. 16.



PRODUCTION AN

You're looking at something special, in this Knapp-Monarch selector switch dial—special in quality, yet special in cost.

Designed as a part for the famed K-M Speed Mix, specifications called for moulded-in lettering on the sharply tapered sides—deep enough to retain wiped-on paint permanently.

Ordinarily such specifications would prevent a straight draw from the mould because of undercuts in each lettering stroke. And the ordinary solution would be an intricate split-cavity mould with loose pieces, not only costing considerably more in itself, but inflating moulding costs as well.

But this isn't an ordinary job. The ordinary 8-cavity compression mould costs just a fraction of what it might, and permits an economical moulding schedule. The trick's in the hand engraving on the hob. Though seemingly engraved at right angles to the casting surface, the hob was actually engraved at right angles to the base of the hob, permitting a straight draw from the mould!

- letter-perfect



Selector Switch Dial, by Kurz-Kasch

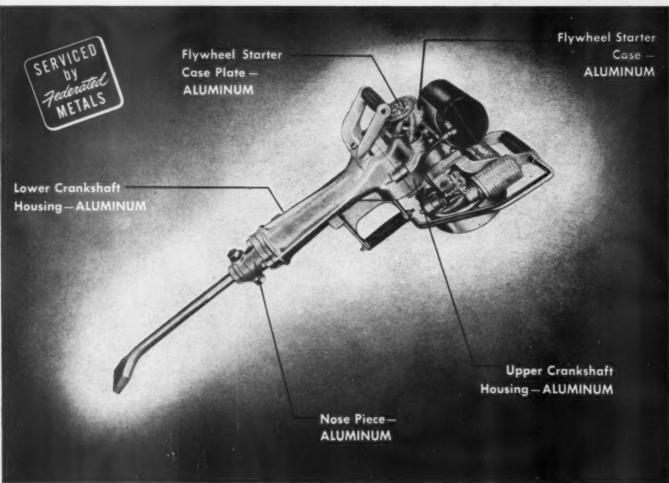
Because of this one Kurz-Kasch production idea, Knapp-Monarch, a manufacturer of quality items in a competitive field, can maintain quality and cut cost. We've a lot of similarly effective notions — none of them confined to any one particular field — and we've been applying 'em to our customers' problems since Plastics began. Here at Kurz-Kasch we're equipped to handle your entire moulding job from start to finish, and ready to talk business. May we send an engineer?





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The Racine Rail Tie Tamper is used to compact the ballast used under railroad ties

JMLcoF-1

HOW ALUMINUM SAVES MANPOWER



To reduce operator fatigue and increase efficiency, the Racine Tool & Machine Company, of Racine, Wisconsin, had to cut weight on their Rail Tie Tamper. Three years of testing brought them to the use of a Federated alumi-

num alloy in casting several important tool parts.

The problem of alloy choice was difficult because the terrific pounding received by the tool required an alloy of high impact strength, high yield strength, and a high proportional limit.

Three years of experiment and test by Racine engineers and Federated metallurgists produced the desired results. Federated aluminum alloy F-430, heat treated, is used for the parts of the tool highlighted above. Tool weight is down ... performance is up ... operator fatigue is reduced.

The complete metallurgical and service facilities of Federated are at YOUR command, too. See Federated for the first in service and the first in products—copper-base alloys, aluminum and magnesium alloys, bearing metals, solders, die casting alloys and fabricated lead products. 24 sales offices across the nation.



Division of American Smelting and Refining Company, 120 Broadway, New York 5, N.Y.

OOK AT WIRING

The hinged couplings add rigidity to sections for lifting into place, and serve as hangers. There are fittings for every possible installation requirement.

It's easy to see why plant men like NE 4x4 WIREWA for protecting wiring-for wiring that may be changed, tapped or spliced frequently. NE WIREWA provides steel protection plus accessibility, unequalled by any other type of wiring raceway. Besides, WIREWA is easy to install.

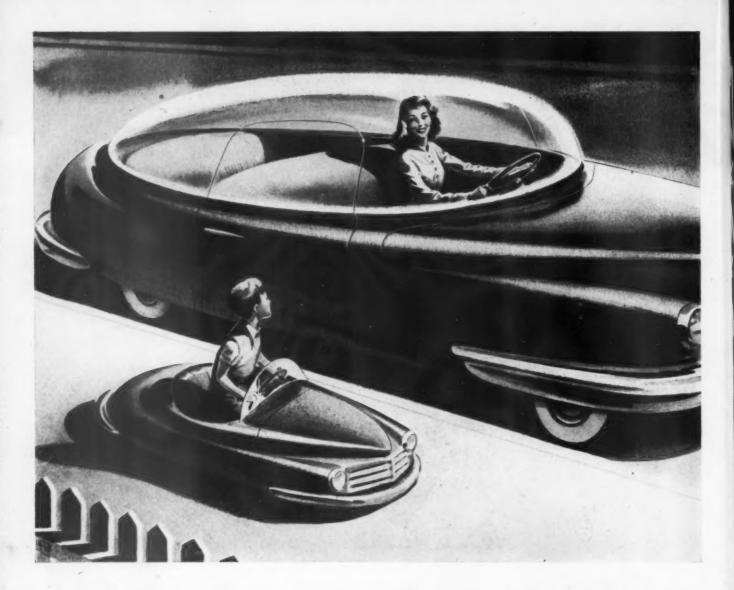
Wiring may be readily inspected any time by simply opening the hinged lids. And the 16 square inches of cross section allows ample room for adding circuits, splicing, tapping and other work. There are plenty of concentric KO's, too, for conduit take-offs.

Low maintenance . . . simple to re-route and extend . . . 100% salvable.

Write for a copy of "A Wirewa You'll Like." It contains installation data and lists all fittings. We'll gladly send you a copy.

1351 CHAMBER OF COMMERCE BLDG., PITTSBURGH 19, PA.





Spongex gives both a smoother ride

FROM TOY auto tires to more than a dozen places in your own new car, Spongex sponge rubber is being used to make life smoother and easier for everyone.

In homes, offices and factories . . . in land, sea or air travel . . . wherever you go, whatever you do today, your path is made pleasanter by *Spongex* as an integral part of more and more widely varied products.

Spongex is used for seals on iron lungs and incubators; for weather strip and rug cushions; for typewriter key pads and refrigerator insulation — an infinite number of things, increasing almost daily.

Made by a company which has specialized for 25 years in the production of cellular rubber products, *Spongex* is an amazingly versatile material that is being used by leading manufacturers to solve problems of cushioning, sealing, insulating, gasketing, dust-proofing, shock absorption, and for sound and vibration elimination.

Give this unique material your serious, consideration when planning improvements of your present products or developing new ones for future production. Samples available for experimental purposes. Sponge Rubber Products Co., 132 Derby Place, Shelton, Conn. Sales Offices in principal industrial centers.



Trade Marks Reg. U.S. Pat. Off.

SPONGE RUBBER PRODUCTS CO.

SPONGEX . CELL-TITE . TEXFOAM . TEXLITE . TEXLOCK



"Quality Control"

ORE and more the need for quality control grows on modern management. It cuts down the wasteful scrap heap. It develops a reputation that builds sales. "Greenfield" recognized this at the turn of the century when it designed its own gages to check its threading tools. "Greenfield" sold the first commercial thread gages in 1908. In World War I, the government turned to "Greenfield" for gage-making leadership. Ever since, "Greenfield" has been a headquarters for quality control on threading operations. To obtain maximum precision without sacrificing mass production means the right tools-taps, dies AND gages. For intelligent, resultful help in the selection and use of the right threading tools and gages, you have available a local "Greenfield" distributor and trained "Greenfield" threading engineers.

GREENFIELD TAP and DIE CORPORATION Greenfield, Massachusetts

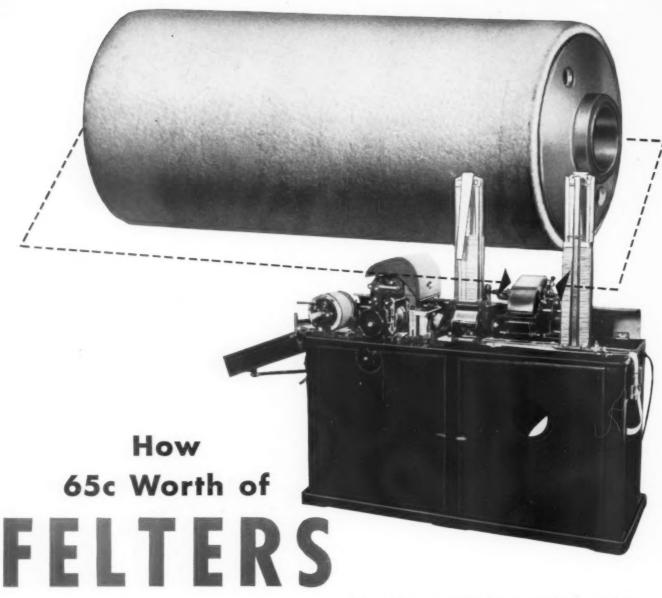




AMPCO TWIST DRILL CORP.

Divisions of Greenfield Tap and Die Corporation





FELT

Helps a \$12,000 Machine Make a Good Impression

"The inking system is the heart of the addressing machine," says Mr. E. R. O'Hara, General Sales Manager of the Elliott Addressing Machine Company, world's largest manufacturer of automatic addressing machines. "To insure the success of the inking system, it is of top importance to use the proper felt roll."

Felters Felt does this exacting job in every machine built by Elliott, throughout the line of 72 models, priced from \$45 to the special combination \$12,000 machine illustrated. Felt washers are slipped over a metal core and are held in place at each end by a flange to form the inking rolls. Density of the felt in all the washers must be absolutely standard and unvarying, in order to prevent undesirably heavy, wet imprints which could blot or smear. Elliott buys many different sizes of these washers from The Felters Company. Every washer is ready for assembly after a single, elementary grinding operation.

As for durability, these rolls of Felters Felt are expected to last for 10 or more years of regular usage.

Felters Felts have solved many difficult problems. Perhaps they can help you. Write for Felters Cut Felt Parts Manual today.

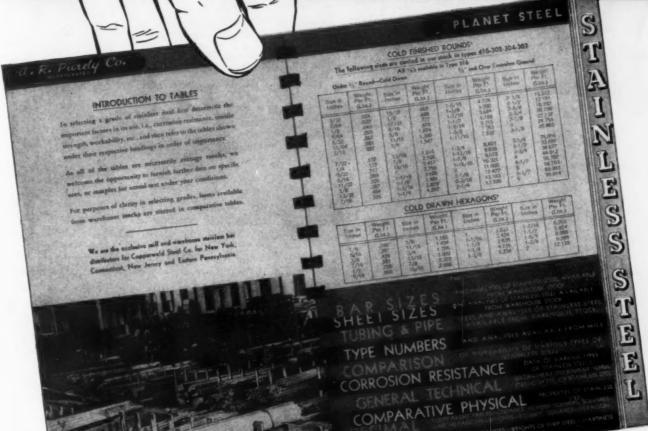
THE FELTERS COMPANY

210-E SOUTH STREET, BOSTON 11, MASSACHUSETTS

Offices: New York, Philadelphia, Chicago, Detroit Sales Representatives: San Francisco, St. Louis

Makes the Felt for the Parts it Cuts

What would you like to know STALLESS STEE



THE PURDY HANDBOOK!

The new PURDY STAINLESS STEEL Handbook contains complete, easy-to-use data important to fabricators and buyers of every type of stainless steel. Physical characteristics, corrosion resistance and other factors are presented in clear, readily understandable tables. Keep a copy handy. If you need additional help—call on Purdy.



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Whether you grind soft or hard materials, there is a Sturtevant Grinder or crusher exactly suited to your requirements.

Tough and rugged, Sturtevant Equipment has the builtin stamina to stand up under continuous operation. Most of this equipment has the "open door" accessibility which makes cleaning easy.

Look into Sturtevant Grinders and crushers for your applications. These machines will give you the exact mesh you want... cut your costs by increasing production. Write for catalog today.



ROTARY FINE CRUSHERS for intermediate and fine reduction (down to ½"). Open door accessibility. Soft or moderately hard materials. Efficient granulators. Excellent preliminary Crushers preceding Pulverizers.



JAW CRUSHERS for coarse, intermediate and fine reduction of hard or soft substances. Heavy or light duty. Cam and Roller action. Special crushers for Ferro-alloys. Several types, many sizes.



RING-ROLL MILLS for medium and fine reduction (10 to 200 mesh), hard or soft materials. Very durable, small power. Operated in closed circuit with Screen or Air Separator. Open door accessibility. Many sizes. No scrapers, plows, pushers, or shields.



CRUSHING ROLLS for granulation, coarse or fine, hard or soft materials. Automatic adjustments. Crushing shocks balanced. For dry or wet reduction. Sizes 8 x 5 to 38 x 20. The standard for abrasives.



SWING-SLEDGE MILLS for coarse and medium reduction (down to 20 mesh). Open door accessibility. Soft, moderately hard, tough or fibrous substances. Built in several types and many sizes.



MOTO-VIBRO SCREENS screen anything screenable. Classified vibrations. Unit construction—any capacity. Open door accessibility. Open and closed models with or without feeders. Many types and sizes—range of work ½" to 60 mesh.

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DESIGNERS & MANUFACTURERS OF DENS AND EXCAVATORS . MIXERS . SCREENS . PULVERIZERS . ELEVATORS . AND COMPLETE FERTILIZER UNITS

MORE PLANTS THAN EVER BEFORE ARE REQUESTING OUR NEW, FREE 1949 Angelica Uniform Catalog



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new fabrics

new uniform ideas

new colors

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- 1. Order direct from the catalog.
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- ☐ Please have your representative call.

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with WHITNEY Roller Chain Drives

Delivery constant, full power from driver to driver mechanisms . . . that's one of the major advantages of using chain drives.

Deeply seated in the sprocket, Whitney Roller Chain eliminates power loss because there is no slippage or friction loss. This means that full rated horsepower is delivered . . . constant speed maintained . . . highest transmission efficiency always obtained.

In addition, Whitney Chain absorbs shock loads without breakage, assuring long operating life; while the flexibility and adaptability of chain drives simplifies design problems.

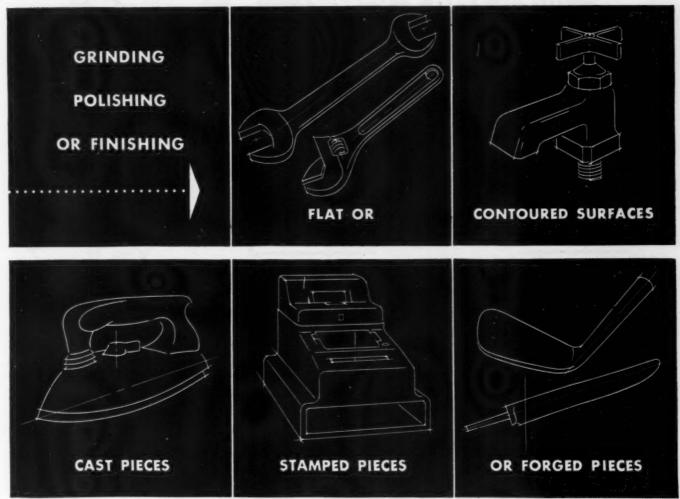
For positive power transmission specify and use Whitney Roller Chain... the all steel drive. Write for information.

• Positive Grip

- Transmission of full horsepower
- High resistance to shock loads
- High load carrying capacity
- Simplifying transmission designs
- Low Maintenance
- Ease of installation
- Long operating life
- Constant uniform speeds

WHITNEY CHAIN & MFG. CO.
Division of
Whitney-Hanson Industries Inc.
207 Hamilton St.,
Hartford 2, Conn.

If you are ...



Here are 7 reasons why the back-stand belt method is best for you . . .

- 1. The coated abrasive belt cuts cooler, faster than the old set-up wheel because of the longer interval between work contacts.
- 2. Inexperienced help can be quickly trained to operate a back-stand belt machine—freeing highly skilled personnel needed to set-up the wheels.
- 3. It takes only a few seconds to change an abrasive belt.
- **4.** Temperature-controlled room for curing set-up wheels can be released for more productive uses.
- **5.** Factory coating by a scientifically controlled process makes possible uniform grit distribution, provides a tough, sharp, fast cutting abrasive tool which assures smooth, even finishes.
- **6.** Versatile contact wheel used with back-stand belt gives added efficiency in grinding and finishing flat and curved surfaces, and permits smooth even grinding action.
- 7. Production is increased because the grinding time per unit is greatly reduced.

And remember the back-stand method is a fast, economical and efficient process that can be installed at reasonable cost without discarding your polishing jack.

MAI	L THIS COUPON TODAY	1
Please send me the	e booklet:	
"Facts About Back	-stand Belt Grinding an	nd Polishing."
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Firm		
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We recommend buying through your Industrial Supply Distributor



Armour and Company . 1355 W. 31st Street . Chicago 9, Illinois



Saves You Money!

Bend any V-Belt and feel the sides change shape. The top of the belt, under tension, narrows. The body, under compression, widens. The sides of the belt bulge out.

The result, if the belt is built with straight sides, is a shape that does not fit the sheave groove—as shown in Figures 1 and 1A, below.



Straight-Sided V-Belt



How Straight-Sided V-Belt Bulges in Sheave-Groove

Clearly, the bulging of the sides will produce excessive wear along the *middle* of the sidewall as indicated by arrows.

Now, bend a V-belt with the concave side—the Gates Vulco Rope.

You get the same shape change but now the new shape exactly fits the sheave groove—as shown in Figures 2 and 2A.

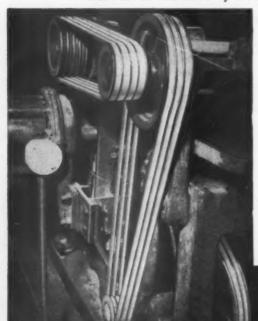


Gates Vulco Rope with Concave Side.



No Side Bulge. Precise Fit in Sheave-Groove.

Results? (1) Uniform sidewall wear; longer life! (2) Full sidewall grip on the pulley. Carries heavier loads and sudden load increases without slippage; saves belts and also saves power!



The Concave Side is MORE IMPORTANT NOW Than Ever Before

Because the *sides* of a V-Belt are what actually *drive* the pulley, it is clear that any increased load on the belt means a heavier load that must be transmitted to the pulley *directly* through the belt's sidewalls.

Now that Gates <u>SPECIALIZED</u> Research has made available to you SUPER Vulco Ropes—carrying fully 40% higher horsepower ratings—the life-prolonging Concave Side is naturally more important in conserving belt life today than ever before.

THE GATES RUBBER COMPANY DENVER, U.S.A.

The World's Largest Makers of V-Belts

494



The Mark of SPECIALIZED Research

GATES VULCO DRIVES

Engineering Offices
And Jobber Stacks
IN ALL INDUSTRIAL CENTERS of the U.S. and
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SHOCK-PROOF SHIPPING BOX

You can't take chances in shipping delicate, precision equipment. If such equipment is damaged in transit, your customer will probably look elsewhere the next time he places an order. Whatever your product, the H & D Package Laboratory can work out a safe, dependable, economical packaging method that will protect your goodwill . . . and your profits!

Use the LUGGAGE BOX for Extra Sales Appeal

Promotion of seasonal merchandise is but one of many successful applications of the H & D luggage box. Use it to add extra value to your product, to win extra sales appeal. It makes your product easier to carry, easier to use. Your dealers will endorse it—because it displays well, simplifies the selling job, reduces selling costs, eliminates repacking and wrapping.

PLYPAK*-- A Packaging Material of a Thousand Uses

PLYPAK* is a corrugated packing material that combines several thicknesses of corrugated paper to form a protective "blanket" which is ideal for packaging fragile merchandise. Clean and easy to handle, PLYPAK* is simply "wrapped" around a product, gives it a soft, closefitting cushion that defies shock. Ask for sample.

*REG. U. S. PAT. OFF.







THEY MAY ... but there's a difference!





Both strings of pearls may look alike to the camera's eye, but one is of matched Orientals . . . the other is a clever imitation. Actual comparison by an expert will show a vast difference in quality and value.

THERE IS A DIFFERENCE IN TAPS, TOO!

While all taps may look alike at first glance, the outstanding quality and plus-value of BATH ground thread taps are quickly evident to the experienced eye of the craftsman.

BATH taps are ground from the solid AFTER hardening, guaranteeing UNIFORMITY and ACCURACY. Made in stock and special sizes for use in working any material or metal. There's a BATH tap for cutting every kind of thread.

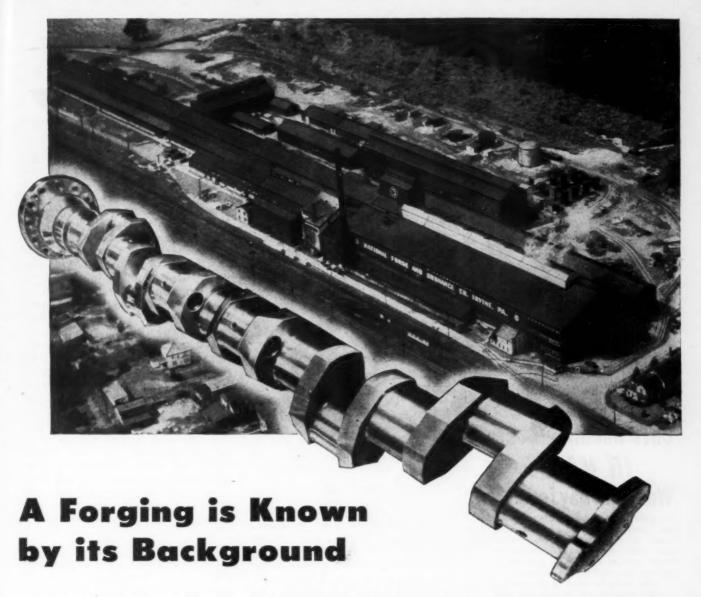
Perhaps you're using a set of 2 or 3 taps where a BATH Acme thread tap will do the work in a single pass! Remember - trained BATH engineers have access to design and production records of hundreds of problems in every possible type of work. BATH representatives are ready to assist you...or write direct about your problem.

PROFIT BY THEIR PLUS PERFORMANCE

PLUG AND RING THREAD GAGES

INTERNAL MICROMETERS GROUND THREAD TAPS

26 Grafton St., Worcester, Mass.



Because precision forging has been traditional at National Forge for more than thirty years, America's most exacting forging buyers place complete confidence in the forgings that come from this well-integrated plant at Irvine, Warren County, Pennsylvania.

The crankshaft pictured above is an illustration of the precise product which is made by National Forge. The precision exists not only in adherence to dimensions and close tolerances but also in adherence to the analysis

of the steel used and to the required physical characteristics. Basic electric steel made in our plant is always used. The forging and heat treatment are carefully controlled to insure the utmost in quality and strict compliance to the specification. Every precaution is taken to insure the product giving complete satisfaction.

Why not let us give you complete facts on the National Forge methods that can make such a difference in having your forgings come out "Okay—all the way."



National Forge

STEEL MAKERS & FORGESMITHS
HEAT TREATERS & MACHINISTS

Irvine, Warren County, Pennsylvania

Brawny ELECTRIC TRUCK AMAZES MANAGEMENT



Cuts Handling Costs IN HALF! Works All Day for 11¢*

Imagine, if you can, a brawny electric truck that moves and lifts unit loads of your product so simply and easily, even your stenographer could operate it all day, and never become the slightest bit fatigued!

That miracle truck is Automatic Transporter. It moves and lifts any and every kind of product with amazing touch-of-thumb ease. All operator does is press the button. Transporter does the rest! One man handles more material than three men manually . . . enjoys doing it!

No wonder Transporter astound-

No wonder Transporter astounded management with its new, low-cost way to cut handling costs thousands of dollars. And it does it for as little as *11c-a-day battery charging cost, maintenance and replacement no item at all. Industry-tested and proved, thousands and thousands are in daily operation. Mail coupon for FREE CATALOG of money-saving facts.

MAIL COUPON TODAY!

AUTOMATIC TRANSPORTATION CO.

95 W. 87th Street, Dept. D-1 Chicago 20, Ill.

Send free catalog showing Transporter new, low-cost way to cut handling costs in half.

Name.....

Address.....

Filosofy of bruging

PTIMISM or pessimism regarding the business outlook depends largely on the point of view. "Let's look at the brighter side of the picture," said George Renard of N.A.P.A., addressing the Purchasing-Sales dinner meeting of the New York Association. "Business conditions right now are are least 10% better—than they will be six months from now."

A FEW weeks ago we met Stan Bien, who has long been the strong right arm of the State Purchasing Department at Lansing, Michigan, and was recently appointed Director of Purchases for the State. His comment in reply to congratulations on this advancement was: "My worries are now official."

THIS item is rather belated, since St. Valentine's Day is several weeks behind us now, but it is our first opportunity to pass it along. It's another creation of the fertile and original brain of Clem Caditz, of Northern Metal Products Company, whose highly individualistic methods of wooing steel from his suppliers have been reported in this column on several previous occasions. To loyal suppliers, his appre-

ciation was expressed on a kingsize, hand-colored card, in the best sentimental tradition of Valentine Day and personalized with the name of the company addressed, professing his own continuing loyalty in the days to come "When steel salesmen stand in line". In that other time-honored tradition of the day, there was also a companion card designed for those who had been less cooperative in the times of scarcity. For these, the picture shows Northern Metal Products, in the form of a broken heart, standing with some trepidation outside the door of an anonymous steel company, while in the clouds of memory appears the vivid recollection of being kicked out through that selfsame door in 1945, 1946, 1947, and 1948. The legend that goes with this poignant illustration reads: "I wonder if he's prepared to pine when he wants to be my Valentine!"

A CCORDING to the Waterbury (Conn.) Republican, there are two opposing philosophies regarding the payment of invoices for city purchases. City P. A. John Kearney is reported as restive under a system that frequently entails a delay of a month or more for formal



approval of bills by the Board of Finance. He expressed the opinion that "a large amount of moneyperhaps as high as \$40,000" could be saved by more prompt handling to earn cash discounts. On the other side of the argument, Budget Director Arnold Furlong contends that "Prompt payment of bills is not as important as proper payment, when the money spent belongs to somebody else." Besides, he says, it wouldn't amount to more than \$20,-000 in any case. The checks provided in the present system are none too rigid, in his opinion, to safeguard the spending of public funds, and the controller's office is vigilant in securing every discount available. The problem, then, is to devise a system that can be both prompt and proper.

H OW LONG should purchasing department records be kept on file? The other day Roland M. Brennan, Purchasing Officer for the District of Columbia, dug out of the dusty archives a copy of the list of prices and awards for the first six months of the department's operation, January-June, 1879, just 70 years ago. Four of the twentyfour firms on that first list of successful bidders are still doing business with the District. The present Purchasing Officer regards with awe some of the prices that were quoted to his predecessor in that far-off day. For instance:

White, all-wool blankets, at \$2.75

per pair.

Men's shoes, full kipp, pegged brogans, at 75¢ per pair.

Utica sheets, 64×90 , at 48ϕ each, and pillow slips at 15ϕ .

Georgia pine, 4x4 selects, at \$20 per M board feet.

Fresh meat, $4\frac{1}{2}\phi$ per pound; bacon, clear sides, 5ϕ per pound; and smoked ham, 6ϕ per pound.

Corn meal, \$1 per hundred pounds; corn, shelled and cleaned, 52¢ per bushel.

Ice from the Kennebec River in Maine, delivered in Washington at 32¢ per hundred pounds.

Not all items have gone up in proportion. There is, for instance, the purchase of McClelland's patent fire plugs at \$80 each in 1879. Today the comparable fire hydrant is manufactured in the shops of the Lorton Reformatory at a cost of \$98 each to the Water Department. Mr. Brennan opines that the \$80 price could have been too high, and perhaps the explanation lies in that little word "patent".

Now it's a Cinch

TO THREAD SMALL PIPE



No. 00R, 111R and 12R are extra handy for 1/8" to 2" pipe

• Light strong efficient ►IEDID ratchets give you perfect threads on 1/8" to 2" pipe — fast, without bothersome getready. Precision cut tool-steel dies. Die heads snap into ratchet ring from either side, can't fall out. You don't need special dies for close-to-wall threads. No. 00R, 1/8" to 1" pipe; No. 111R, 1/8" to 11/4"; No. 12R, 1/8" to 2." Conduit dies furnished on request. Buy these handy work-savers at your Supply House.



THE RIDGE TOOL CO. • ELYRIA, OHIO

You know you're right



Clean-cut threads and uniformly high quality are only two of several features that make General Electric white rigid conduit the first choice of electrical contractors and maintenance men everywhere. Other considerations are its hot-dipped zinc coating—fused into high-grade steel—and its tough, smooth-as-glass Glyptal* lacquer finish, inside and out.

Always, when you think of rigid conduit...think of "G-E White." For further information, see your nearest General Electric Construction Materials distributor, or write to Section C15-670, Construction Materials Department, General Electric Company, Bridgeport 2, Connecticut.

*Trade-mark Reg. U. S. Pat. Off

GENERAL ELECTRIC

RACEWAYS ROUNDUP

with your

GENERAL ELECTRIC

Construction Materials Distributor



Still the favorite for wiring protection against chemical corrosion is General Electric black rigid conduit.

"G-E Black" is made from the same high-grade steel—and is manufactured with the same precision—as "G-E White." The tough, glassysmooth, baked-on enamel makes wire pulling easy, and is an excellent paint base.

General Electric switch and outlet boxes are made in a variety of sizes, shapes, and depths for every purpose.

Most are available either galvanized or with black-enamel finish. All cable and conduit boxes have improved knockouts, are easy to install, and have the approval of Underwriters' Laboratories, Inc.



General Electric fittings and accessories for the complete line of G-E conduit products are available.

Carefully designed connectors, nipples, couplings, and other fittings make installation of G-E raceways simple and fast. All types of connectors for armored and nonmetallic cables are included in the G-E line. When installing any type of electric wiring, make sure you use General Electric fittings.

On your next order, why not try the time-saving, "onestop, one package" service that your General Electric distributor can supply?



Because he carries the complete General Electric line, you can order every item you need from him. No need to run around getting part of your requirements in one place and part in another. It's the kind of service busy contractors need to help stretch scarce working hours.



Purchasing Previews

April 1, 1949

TAX BOOST BASED ON INFLATION

Political tug-of-war now centers around Congressional action on taxes. To sustain the Administration demand for increase in tax levies, tactics have been to stress the inflationary dangers.

Proponents of higher taxes maintain that the only way inflation can be minimized is by increase in taxes.

Department of Commerce officials take a strongly divergent view on the economic trend. Commerce reports that demand has been weakening in the private domestic markets, and that there has been a sharp falling off in demand from foreign markets.

Only significant expansionary factors are the Government

expenditures.

GOVERNMENT SEES GOOD BUSINESS IN 1949

Question is whether the Government purchases can so effectively spearhead the economy as to carry business along at current high levels. Department of Commerce view is that business in 1949 will be good, although shaded at a point below the 1948 levels. The Commerce Department does not view this development as being particularly dangerous.

They maintain that the fact that prices may drop does not necessarily mean a major breakup of large trading, and point out that in 1929 depression came after an ex-

tended period of very stable prices.

PRODUCTIVITY INCREASE AT A SLOW WALK

Bureau of Labor Statistics, Department of Labor, reports that the early forecasts of great increases in industrial productivity have failed to materialize. Productivity started to drop in 1943, and only recently has there been

any indication of an upward trend.

After World War I, productivity increased sharply, due primarily to factors which made possible a quick reconversion on industry. The first of these was that World War I did not bite deeply into the economy of the country; the munitions industry was mobilized, but civilian industry did not convert to war any large degree. The second factor was that following the first World War, the general pattern of industry underwent a drastic change from smaller units of production to large integrated units.

World War II, on the other hand, absorbed U. S. industry and business, and disturbed trade relationships between producer and supplier to a greater degree than has been realized. Also, the pattern of industry is well established, and no increment in productivity has been gained through

any major change in industrial system.

As for the outlook on productivity, gradual improvement

is anticipated if industrial activity remains at a high level. If there is a decline in business, productivity will drop. Extent of such a drop would not be as great as the business decline.

If the BLS analysis is correct, no substantial and general drop in prices can be expected as the result of

increased productivity.

BUYING TRENDS NOTED . . .

A significant development in the trend of consumers' expenditures in 1948 occurred in the final months of the year, when expenditures on durable goods, which previously in the post war period had increased at a faster rate than other expenditures, actually declined. This decline in the final quarter consisted of a sharp drop in major household appliances and a smaller decline in furniture, partially counter-balanced by a continued rise in automobile buying.

Special influences, including consumer-credit regulations and some seasonal factors, may have contributed to the slackening in demand for these products, but progress in filling the backlog appears to have been important.

BALANCE EXPECTED IN STEEL SUPPLY IN 1949

Volume of construction this year will have a significant effect on supply of iron and steel. A considerable drop in the construction of houses is expected.

Anticipating this development, the Division of Industry Cooperation has cut the tonnage of steel allocated to some segments of industry supplying home construction equipment.

Supply of steel is expected to balance demand sometime this year, with some industry sources anticipating that the steel industry will be actively looking for business by the middle of the year.

If the building season this spring does not start off at a fast pace, balance is likely to come much more quickly.

INDUSTRY CUTTING DOWN ON INVENTORIES

Currently there has been considerable effort to work down inventories to a minimum necessary to sustain volume of sales. This trend takes into account the long-term build-up of inventories during the last several years.

During 1948, manufacturers, wholesalers and retailers continued to expand their investment in inventories. The increase in book value amounted to \$6 billion, compared with 8.1 billion in the previous year and 10.7 billion in 1946. When allowance is made for the part of the rise in book value attributable to increased replacement charges and price appreciation, it is estimated that the volume of goods added to business inventories in 1948 amounted to \$2.7 billion---slightly less than the 1947 accumulation, and well under that in 1946.

The greatest inventory expansion in 1948 occurred during the first and fourth quarters. The accumulation in the first quarter was largely in retail stocks. The winter hesitation in sales and the February break in commodity prices fostered a more cautious policy, and in the second quarter retail stocks were reduced while the increases in manufacturing and wholesale inventories were moderate.

However, business activity continued strong and demand was bolstered by tax reduction and the European recovery and armament programs. In the third quarter both manufacturers and retailers stepped up buying for inventory.

Accumulation of goods in inventory continued during the fourth quarter, and book values advanced substantially, particularly in manufacturers' finished goods. Part of the increase in stocks in this period was seasonal, but part appears to have been involuntary, with some businessmen anticipating further rises in activity which did not materialize. During this quarter there was a downturn in orders placed by businessmen.

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1/4" STANDARD DRILL—For Maintenance \$4400 and Medium Production Work



"HEAVY-DUTY DRILL—For Heaviest, \$5000
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*Trade Mark Reg. U. S. Pat. Off.

Black Decker



BENCH GRINDERS





SAWS

SCREW DRIVERS

With surprise surpluses piling up and cancellations becoming more frequently a part of many manufacturers' problem, a comprehensive review of personnel costs, operation methods may well be indicated.

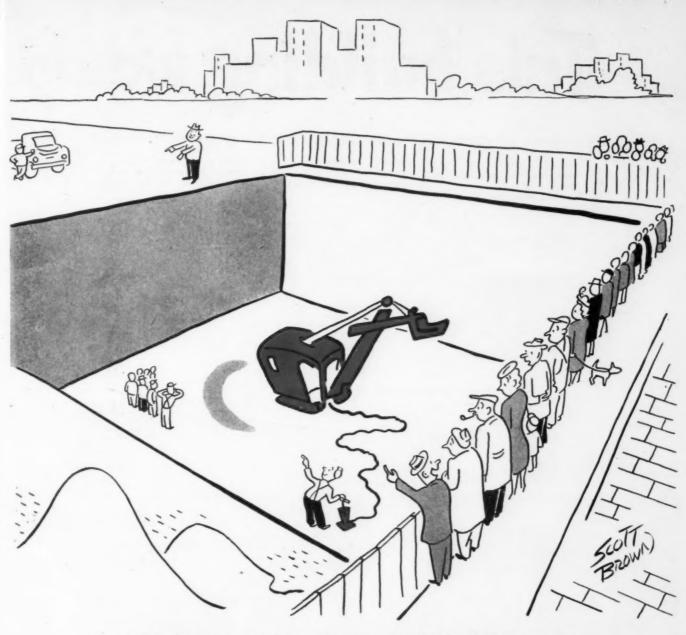
give us the SIZE...

If needless handling of out-size pieces,
extra processing or waste steps
(such as rehandling scrap) are running up labor costs,
using extra man-power, and cutting into the
profit picture, our representative can help you.
Harry Harris & Company is now supplying large and
small volume orders for steel blanks and
strips that meet the most exacting specifications as to
quality, gauge, and measurements.

we supply the STEEL BLANKS and strips

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"They blast it out. It's put together with Circle ® Fasteners."



This building would

examples of changes made during construction at low cost

DUST COLLECTING SYSTEM —its exact location was not determined until after the building was well along.

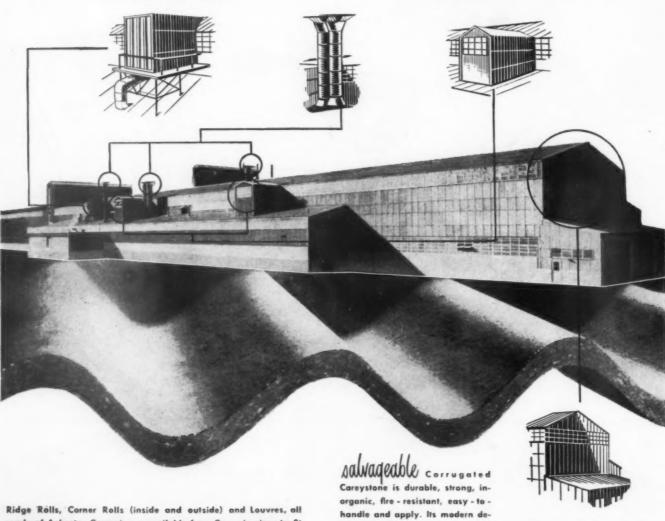
Due to the flexibility of Corrugated Careystone, major changes and additions were made quickly and with relative ease and economy.

STACKS - to take off exhaust from paint and ceramic coating spray booths.

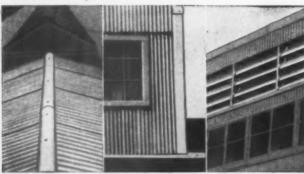
Carevstone's resistance to fumes and heat made these additions practical and economical. No special protective materials were necessary.

PENTHOUSES—to house vertical conveyors at tem peratures up to 150° F.

New wall openings made after walls were in place . . with a minimum of time and expense. All Corrugated Careystone was reused in the new plan.



made of Asbestos-Cement, are available from Carey in sizes to fit all construction requirements



sign fits it for modern interiors and modern exteriors—for a new kind of modern construction.

easy application

END WALL—designed for future expansion. Wall can be dismantled and Corrugated Careystone reused if building is extended to gain more floor space.







SAW IT

NAIL IT

BOLT IT

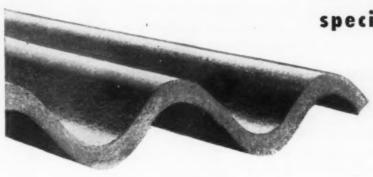
cost you 40% less, too, with Carey stone

We built this plant with our own products . . . to make more products to build more plants! We estimate we saved as much as 40% over conventional masonry construction by using Careystone Corrugated Asbestos-Cement Sheets. This should be real news for you—especially if you are making plans for a new building or changes in present ones. We needed to get a new plant into operation quickly. We did it by building it with Corrugated Careystone.

For commercial and industrial building and for all

light-weight construction, we know of no building method that takes less time in erection; that with-stands weather any better; that offers more flexibility in usage or expansion; that requires less maintenance; that provides more protection from fire, weather, decay and rot; or that costs less.

Most plants undergo some changes while under construction. Buildings built with Asbestos-Cement Careystone, Corrugated or in flat sheets, cost less to change, cost less to build, cost less to maintain!



SEE FOR YOURSELF. Write Carey for "Manual 808"—address Dept. P4

corrugated Carey stone

FOR WALLS - ROOFS , PARTITIONS

1. 4.2" Corrugation. 2. Approximately 3%" thick 3. Weight: 3.75 lb. per sq. ft. 4. Length: Up to and including 12'. 5. Width: 42" 10 corrugations. 6. Maximum purlin span 4'6". 7. Maximum girt span 5'6".

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YALE

es a pallet load. High stacking of multi-unit puts storage space to fullest use. Yale High Lift Trucks handle loads up to 30,000 lbs. in a single tion. High Lift Platform Trucks have capacities 50,000 lbs. Low Lift models, to 60,000 lbs.



Crone Trucks are used to lift and stack all kinds of in plant and yard. They also transport material, assembly of machinery and handle many mainice jobs. They slew and boom easily, travel fast. cities up to 10,000 lbs.



Break bottlenecks in production and your

COSTS

Production gets in a jam when material isn't kept "on the move." If you are up against this problem in your plant, it will be well worth your while to learn how modern material handling machinery can open the way to greater output.

Right now you may not know exactly what kind of handling equipment will do the best job and save money at the same time. So your best bet is to get the benefit of the experience of Yale & Towne, pioneer in the manufacture and correct application of material handling machinery.

The Yale line of material handling machinery is so complete and diversified that selection for specific requirements is easy. Whether you need hand or electric hoists, hand lift or power trucks or scales, Yale representatives throughout the nation and the world will gladly help you find ways to break production bottlenecks, save time and effort and cut handling costs.

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THE YALE & TOWNE MANUFACTURING CO.

Department L-9

Roosevelt Boulevard

Philadelphia 15, Pa.

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Yale Load King Scales provide the unparalleled accuracy of the exclusive MAGNETROL mechanism. They speed weighing, batching, counting, measuring and testing. There's a model for every industrial need—every type from bench to crane scales. Capacities to 60,000 lbs.



Fragile loads are hondled safely and efficiently by this fast Load King Wire Rope Electric Hoist. Yale makes time and effort saving electric hoists in capacities up to 12 tons. Hand chain hoists are built to lift as much as 40 tons.

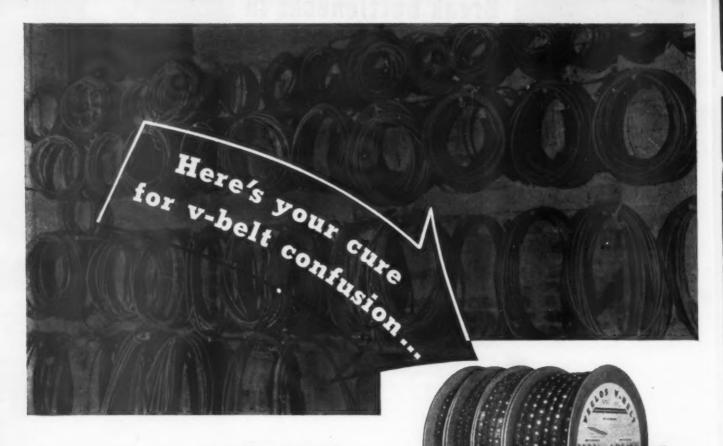


"Eusy lift, eusy roll, eusy steer" summarizes the qualities of Yale Hand Lift Trucks. Because they can handle so much in a single trip, they help break production bottlenecks. Capacities range up to 20,000 lbs. Platform, pallet and tin plate models.





MATERIAL HANDLING MACHINERY · hoists ... hand and electric · trucks ... hand lift and power · industrial dial scales



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HAS your v-belt inventory grown too large, too costly and too complicated by too many sizes of endless v-belts? No matter what size your inventory, Veelos can cut it—drastically!

Let's assume that you use O, A, B and C widths. With only four reels of Veelos you can make up more than 316 sizes of endless v-belts. If you use only A and B

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Ease and speed of installing Veelos lowers machine downtime. On drives with outboard bearings, it is installed without moving the motor or dismantling the machine.



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ADJUSTABLE TO ANY LENGTH . ADAPTABLE TO ANY DRIVE

Made in all standard sizes, fits all standard grooves. Packaged on reels in 100-foot lengths. Sales engineers in principal cities; over 300 distributors throughout the country. Veelos is known as VEELINK outside the United States.



wiring materials. Exciting new products and a full line of old standbys make General Electric the right choice for every wiring requirement.

- I. NEW G-E REMOTE CONTROL wiring puts switches for various lights in many convenient locations. Master panel can be located at production head's desk. Banks of switches can also be located at convenient points in the shop for local control. This flexible, new wiring system also permits control of any or all lights from distant locations, such as other offices or a master-control point. The G-E remote control wiring system makes multi-point switching economical and easy to put in.
- 2. G-E REMOTE CONTROL WIRE—lightweight, with two or three conductors—was specially designed for remote control wiring. This trim-looking wire can be installed either concealed or exposed-makes a neat installation when it's run along wall surfaces. It permits remote control switches to be placed practically anywhere. The use of a low-voltage relay makes this small-size wire practical.
- 3. AVA POWER CABLE is a natural for bringing in power to a high-level lighting installation like this. And, when you think of power cables, think of General Electric Deltabeston* cables. They'll save you maintenance grief, because they're built to beat ambient and operating heat. They can *Trade-mark Reg. U.S. Pat. Off.

help you save space, too, because they are designed to carry more current than ordinary cables of the same size.

- 4. TYPE TW WIRE is recommended for installation in raceways. Smooth-finished G-E Type TW can be cut and stripped with little effort-pulls through conduit easily when wiring changes are necessary. Small diameter and long life are features of this G-E thermoplastic wire-use it to help your wiring system stay modern.
- 5. CONDUIT, of course, should be General Electric "White" the rigid conduit that's hot-dip galvanized for extra protection. High-grade steel-galvanized inside and out, and lacquer-coated-gives you maximum wiring protection with a minimum of maintenance. Remember to specify 'G-E White."

Your distributor of General Electric construction materials can supply you with any of these materials, or with any of thousands of other items from the General Electric line. For more information, contact him, or write to Section K17-470, Construction Materials Department, General Electric Company, Bridgeport 2, Connecticut.



You can always tell the Difference

by the Tests of the Trades



The Taste Test

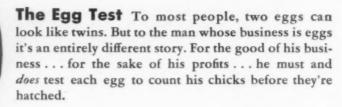
In the paper industry, one of the good old tests of the trade is the taste test. An experienced man can tell by his sensitive taste if the exact amount of sizing is being mixed with the pulp.



The Bird Test

Many a man is alive today because of a little bird. You know the story ... and nobody knows it better

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Before plunging into the expense of painting his plant a wise paint buyer determines his total costs and final results by the on-the-wall test. He compares different paints . . . by the amount they can be safely thinned; by the number of square feet each gallon covers; by the time and labor required to paint a given test area; by the number of coats it takes to do the job right.

Through that kind of sound testing, plant operators find without fail that Barreled Sunlight does a better paint job for less money than any other paint on the market. This is no hollow claim. It is a fact we can prove. Your nearest Barreled Sunlight representative will gladly do it by demonstration. Write and he'll call at your convenience.

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Barreled Sunlight



BLANKING OF FORMING

make either operation easier with

WEIRTON

HIGH-CARBON STRIP

COLD-ROLLED SPRING STEEL

Whether you use cold-rolled spring steel for blanking or for forming, there is a Weirton high carbon strip that simplifies production and holds down costs.

Weirton's close control over every phase of manufacture is your assurance of a consistent balance of desirable qualities and properties. You can depend on Weirton High-Carbon Strip for accurate response to heat treatment—uniformity of gage and width—uniform chemical and physical properties—exact constancy of grain structure—controlled decarburization limits. In other words—Weirton High-Carbon Strip makes good products better, helps you make them more economically.

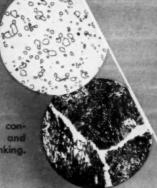
Weirton High-Carbon Strip is obtainable with the desired chemical analysis and for specific heat treating and hardness ranges, in widths up to seven inches.

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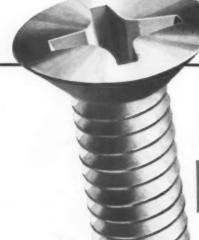


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SOLID FRONT GAUGES

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APRIL, 1949

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Tru-Lay Preformed Wire Rope and Crescent Non-Preformed Wire Rope

AMERICAN CABLE DIVISION

AIRCRAFT CABLE...

Controls, Fittings . . . Tru-Stop Brakes for Trucks

AUTOMOTIVE and AIRCRAFT DIVISION

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CAMPBELL MACHINE DIVISION

CHAIN BLOCKS...

and Trolleys

FORD CHAIN BLOCK DIVISION

WIRE ROPE...

Lay-Set Preformed Wire Rope
"Nonparell" Non-Preformed Wire Rope

HAZARD WIRE ROPE DIVISION

PRESSURE GAGES...

HELICOID GAGE DIVISION

AUTOMOTIVE EQUIPMENT...

for garages and service stations

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Bronze, Iron & Cast Steel : . . Steel Fittings

R-P & C VALVE DIVISION

CASTINGS...

Electric Steel

READING STEEL CASTING DIVISION **AMERICAN CHAIN DIVISION**

HOISTS and CRANES...

Wright Chain Hoists, Electric Hoists, Cranes, Presses WRIGHT HOIST DIVISION

BOLTS and NUTS...

THE MARYLAND BOLT and NUT COMPANY

SPRINGS ...

Owen Springs and Units for Mattresses and Furniture OWEN SILENT SPRING COMPANY, Inc.

"ROCKWELL" and "TUKON" HARDNESS TESTERS...

WILSON MECHANICAL INSTRUMENT CO., Inc.

EQUIPMENT, MADE BY ACCO'S

MANLEY DIVISION.

AMERICAN CHAIN & CABLE BRIDGEPORT

Straws in the Trade Wind

ALL business indicators are not included in the statistics. The widely divergent interpretations based on a single set of figures, and the repeated warnings against the danger of talking ourselves into a depression, are evidence of the fact that the statistics on current conditions are results as much as they are causes, reflecting the factor of human judgment and the cycle of business confidence. These are the basic moving forces that determine the business outlook, as business executives face the statistical picture and set their policies to mold the future situation to best advantage.

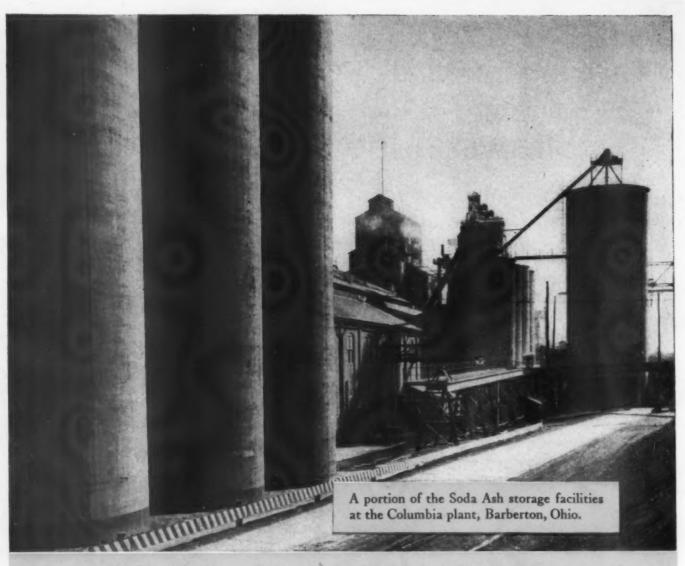
Within the past few weeks, one of the significant human factors has been the appearance of intensive "buy-at-home" campaigns in various sections of the country. Characteristically, the dominance of this type of thinking is a symptom of contracting business, one of the sure signs of the expectation of a business recession. As a policy, it does not aim at improvement of the underlying situation, but at retaining a greater share of a diminishing total.

Within the past few weeks, also, PURCHASING has had the opportunity of participating in three joint meetings of sales and purchasing executives where, on a broader scale, the representatives of these coordinate components of the industrial distribution process have sought the means of working more closely together toward the improvement of the supplier-buyer relationship, for their mutual advantage and for the betterment of business conditions generally.

The one attitude is a surrender to the statistics. The other is a constructive effort to arrive at a situation which will be reflected in more favorable statistics. The purchasing executive has the choice of throwing his weight in either direction, and in a buyers' market his influence is likely to be a determining factor. His decision can go a long way toward proving that the buyers' market is not necessarily synonymous with bad business, but can be a period of sound stability based on fair and solid values.

G

Stuart F. Henritz



Here's why it
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Columbia Soda Ash - Light or Dense

Made for Your Requirements—Columbia's original product; manufactured, since 1899, with intimate knowledge of the specific needs of all types of industrial applications.

Controlled Quality—Eliminates variables which can cause production difficulties. Highest standards maintained to produce Soda Ash which always tests 99-100% Na₂CO₃, with an Na₂O equivalent of 58% plus.

Precise Grading—Density, for the grade specified, is uniform in particle size. Your production methods require no adjustments for Columbia Soda Ash.

Check your Soda Ash requirements with Columbia ... you'll receive excellent service-another important factor in your operations.



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PAINT - GLASS - CHEMICALS - BRUSHES - PLASTICS

GLASS COMPANY BURGH



A brief summary of outstanding features of timely interest and importance in this issue, to conserve the time of busy readers



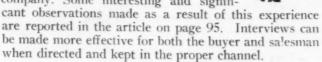
The Hoover Commission's long awaited report on the deficiencies of Government Purchasing methods and practical means of improving them has made headlines in the public press. Some fantastic cases of wasteful practice were disclosed and patiently traced to their source as the basis

for the constructive recommendations looking to more efficient control of public expenditures. Unfortunately, the news value of the more sensational disclosures has somewhat obscured the suggested cure—which is to recognize the purchasing function as one calling for skilled professional service, apart from political considerations and the illusory prestige of spending authority now lodged in various department and bureau heads. It is the same lesson that industry has learned and proved under the spur of competitive necessity. A summary of the Hoover report appears on page 99.

Steel Prices may reverse their upward trend before the end of 1949, according to Earl Shaner in an address at the Public Utility Purchasing Agents conference in Chicago. The reasons leading to this conclusion are set forth in the article on page 111.

The Copper Outlook is not so clear, because of the uncertainties of supply, which is likely to be the determining factor in this market for many months to come. A comprehensive analysis of the copper market appears on page 113, with particular emphasis on supply in its relation to probable requirements and the probable effects on prices.

A unique opportunity to acquire personal appreciation of the Salesman's Viewpoint of purchasing methods has been given to one purchasing agent, in visiting other purchasing offices as part of an actual field sales laboratory experiment by his company. Some interesting and signifi-



As the executive head of a management department, most of a purchasing director's time is spent in functions of Administration rather than in actual buying. In a stimulating analysis of this situation (page 117) Don Hogg suggests that a greater share of our educational effort could well be placed on administrative work.

This month's Guest Editorial (page 89) is contributed by the Chairman of the "How to Buy" Subcommittee of the N.A.P.A. educational program. With a wealth of helpful material available, selectivity is the key to getting the most benefit for the individual and for the group in the continuing process of raising the standards of professional competence in purchasing.

Some discoveries of scientific truth have been the result of fortunate accident but the greater part of technological progress comes through painstaking **Research**. The profit motive should not be discounted in a research program, for it creates industrial opportunities along with its contri-

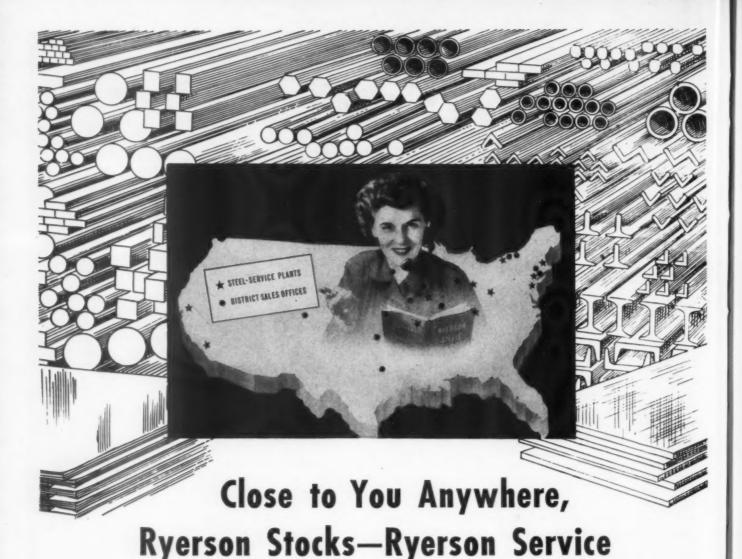


bution to better living, and pure science has meaning only as it is applied to useful ends. The article on page 107 shows how consistent industrial research has developed better materials, better methods, and better utilization of our natural resources.

Put yourself in the supplier's place as he tries to interpret the Contract Clauses used on purchase orders to govern the timing of shipments. Misunderstanding, loss of good will, and needless expense are incurred through the use of ambiguous terms, where the buyer may have a clear idea of his own meaning, but the supplier has to guess. In the article on page 137, numerous examples from actual purchase orders are analyzed for exactness of meaning, and a simple suggestion for clear, specific wording is proposed. Examine your own order terms in the light of this discussion.

For the immediate future, business must adjust itself to operating within the national policy of maintaining a Controlled Economy, but the effectiveness of government spending to support prosperity will meet a severe test on the declining side of the cycle. A leading business executive views the long-term outlook with abounding confidence. Turn to page 91.

Are you making full use of these monthly departmental features compiled especially to keep you informed on recent industrial developments? A selected list of new Trade Bulletins and Catalogs that are yours for the asking (page 12) and the illustrated summary of New Products and Ideas (page 150) will help you keep abreast of industrial progress. The Forms Forum (page 225) shows successful procedures from other purchasing offices. Previews of national policies affecting purchasing are compiled by our Washington editor (page 67).



No matter where you are, or where you want steel delivered, there's a Ryerson plant, with diversified Ryerson steel stocks, within quick shipping distance. A network of thirteen big plants, plus twelve district sales offices, makes Ryerson steel service the most comprehensive and convenient in the nation.

Each big Ryerson plant is set up to operate independently with large stocks and high-speed cutting and handling facilities, plus its own complete staff of carbon, alloy and stainless steel specialists. Yet each Ryerson plant and office offers the advantages of a unified organization with a hundred and six years of practical steel experience.

These days, with the record-breaking demand for steel, we may not always have the exact size or quantity you need. But you can be sure we will do our very best to serve you. Usually, from long experience, we are able to suggest an available alternate steel. So, for steel and steel service, call the Ryerson plant or office nearest you.

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Your nearby Ryerson plant is a quick, convenient source for everything in stainless steel. Bars, plates, sheets, tubing, pipe and other stainless products in many types and finishes are on hand. And stainless from Ryerson stocks means Allegheny stainless, the time-tested product of America's oldest stainless producer. Need stainless? Call Ryerson.



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JOSEPH T. RYERSON & SON, INC. PLANTS: NEW YORK, BOSTON, PHILADELPHIA, DETROIT, CINCINNATI, CLEVELAND, PITTSBURGH, BUFFALO, CHICAGO, MILWAUKEE, ST. LOUIS, LOS ANGELES, SAN FRANCISCO

Educational Indigestion

· By W. B. Wight



HE work of the National Committee on Education, under the leadership of George Aljian, has been predicated upon and is progressing toward the satisfaction of expressed needs of the members. The most important phase of any activity of this sort is an assurance that the investment involved will create profits. The Educational Committee looks upon the utilization and absorption of the information by those for whom it is developed as the only "profits" obtainable. Two things are necessary to the achievement of N.A.P.A.'s educational 'profit"-a knowledge on the part of each member of what is available for his use, and willingness or ability to find time to utilize the ma-

If one excludes those engaged in writing or editorial work, probably no other group of men in business today has an opportunity to read and assimilate as much information in the course of a day as one engaged in modern industrial procurement. Added to our daily stint of administrative and routine buying tasks comes the ever increasing stack of advertising, house organs, trade magazines and literature of all types for our consumption. Not only the appetite but the time available for such mental dining is lim-The smart buyer will have discovered some means of treating all reading matter categorically, studying some, scanning others, filing some for "keeps" and others for

Wilson B. ("Pete") Wight

Wilson B. ("Pete") Wight is Assistant Purchasing Agent of the Bausch & Lomb Optical Company, Rochester, N. Y., Secretary-Treasurer of the Rochester Purchasing Agents Association, and Chairman of the "How to Buy" Committee in the N.A.P.A. educational program.

Following his graduation from Syracuse University in 1932, he attended the Harvard Graduate School of Business Administration, graduating with the M.B.A. degree in 1934. It was at Harvard that he had his first introduction to Purchasing, as a student of Professor Howard T. Lewis. As an instructor of courses in Distribution at Rochester Business Institute in 1934, he organized and taught the first course in Purchasing that had been included in their curriculum. In May, 1935, he joined the Purchasing Department staff at Bausch & Lomb as a Buyer. From 1940 to 1945 he served as Administrator of Priorities, and was appointed Assistant Purchasing Agent in the latter year.

His interest and efforts in behalf of Education for Purchasing have been tireless, constructive, and eminently successful. In 1936, he organized the curriculum for a three-hour, one-semester course in Purchasing at the University of Rochester. It was difficult at that time to get the necessary fifteen people to register for the course. For the past several years it has been given as a two-semester course with full six-hour credit toward a college degree, and the classes are over-subscribed by advance registration. One of Pete's early classes, unwilling to give up the subject when the course had been completed, organized a junior Association of Industrial Buyers, to carry on their studies and discussions, and it has continued as an active and flourishing organization.

A year ago, he assisted in organizing and conducting an intensive training course in "Technical Problems in Purchasing" at the Rochester Institute of Technology, which attracted purchasing men all the way from Oregon to North Carolina. This course is an adaptation of the "How to Buy" principle to the facilities of an excellent technical school. The second session of this course will be held later this month.

Another of his educational interests is the promotion of modern concepts of receiving inspection, and correlation of the work of the Society for Quality Control with that of purchasing. He has spoken before the Rochester Chapter of SQC on several occasions, and has assisted in the development of a pamphlet on the subject for N.A.P.A.

As a member of N.A.P.A., he has been a panel speaker on several national and district convention programs, and a member of the Educational Committee since 1947. He is also a member of the Committee on Business Trends, Rochester Chamber of Commerce.

Mr. Wight is married and has two young sons, aged five and three. He is an ardent hunter and fisherman.

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"scrap". The buyer who has developed no technique for facing this problem is a fit subject for Educational "Indigestion".

It is unfortunate that we must so often use the term "Education" in reference to academic achievement. Professional education is much broader and is practically essential to progress. Certainly, if we cease to learn, progress becomes stagnant. The Purchasing Agent who fails to educate himself continuously will not only become submarginal among his professional associates, but will contribute to his company's failure to remain competitive in its industry.

The trick is to treat the problem selectively; to absorb only the educational "food" which, when assimilated, will be beneficial to the particular system. Thus we define the problem of the Educational Committee—to develop those projects which are in demand and to produce them in a form which will reach the greatest number most effectively.

Much has been written heretofore on the organization and plans of the Educational Committee. Here is what is now available and is likely to become available in 1949.* As additions and changes are made in this list, District Educational Chairmen and Local Educational Chairmen should make them known to the members.

Available for Member Consumption

- Commodity Research Studies: Ink, Pig Iron, Caustic Soda, Sulphuric Acid, Linseed Oil, Lead, Copper, Rubber, etc.
- Outline of an Intracompany Training Program for Purchasing Personnel.
- 3. "How to Buy" Contest—recently closed.

Coming for Member Consumption

- A complete bibliography of available literature on the subject of Purchasing.
- 2. Additions, revisions and new commodity research studies.
- A text devoted to the small Purchasing Department.
- Revision of the Handbook of Purchasing Policies and Practices.
- Pamphlet on Reports to Management.

6. Pamphlets and articles on "How to Buy" specific commodities.

Available for Local Association Programs

- 1. Manual for Educational Programs in local Associations.
- 2. Manual for Organizing and Conducting Forum-Discussion meetings on
 - a. Purchasing Administration.
 - Basic Purchasing Policies and Procedures.
- - b. It's Good Business—Bates Manufacturing Company
 - c. Building of a Tire—Firestone
 Tire and Rubber Company
 d. The Paint Film—The New
 - Jersey Zinc Company e. Steelmaking—Bethlehem Steel
 - Company f. Plastics Film—
- Material for a discussion meeting on "How to Buy".
- 5. Complete courses on "How to Buy".

Coming for Local Association Programs

- 1. Material for group meetings in Local Associations.
- 2. Guide to assist local program leaders.
- 3. Visual Education Films—Aluminum, Zinc.

Available for the Student of Purchasing

- 1. New texts on the subjects of Purchasing.
- Improved bibliography of Purchasing literature.
- 3. Outline of Basic Policies and Procedures Course.
- 4. Boffey Memorial Contest (Closes July 1, 1949).
- 5. Courses on "How to Buy".
- A committee of specialized personnel under the leadership of Stan Mayo of New Orleans to cooperate with schools and colleges in the development and improvement of Purchasing courses.

Coming for the Student of Purchasing

- 1. Complete bibliographies of Purchasing literature for all libraries.
- Review of current and new literature on the subject of Purchasing by Art Pearson's Committee on Literature.
- A course on "How to Buy" adapted to use of schools and colleges.

If you do not find what you want most from your Educational Committee listed among those achievements or anticipated achievements,

give the Committee the benefit of your recommendations by writing to your District Educational Chairman or through the chairman of your local Educational Committee.

A great deal of interest has been shown in the development of "How to Buy" material. Since this happens to be my particular responsi-bility, perhaps I should report on progress. The member contest closed December 31 with a fine representative group of papers being forwarded for judging. It is evident from the papers which I have had an opportunity to read that some very valuable information has been contributed by the members who participated in this contest, and the prize winners, who will be announced at the Convention in June 1949, will be men who have made a substantial contribution to the "How to Buy" program.

Although at the outset the Development Committee on "How to Buy" was charged with the task of preparing a suitable course on the subject of "How to Buy", it is now apparent to the committee that other forms of releases of "How to Buy" information, such as programs for local association meetings and articles and pamphlets, will have to be utilized if the greatest "profits" are to be achieved. There are now seven "How to Buy" courses being taught throughout the country. The Committee is watching the progress of each of these courses with keen interest. Not all of them are being taught the same way, nor with the same subjects, but out of their experience we hope to find a suitable procedure for teaching "How to Buy". Meantime, the work of developing outlines, pamphlets, texts and articles on "How to Buy" specific commodities is progressing with the cooperation of the various N.A.P.A. Commodity Committees.

Your Educational Committee must represent N.A.P.A. and its twelve thousand members all over the United States. It is impossible to assume that all of the activities of the committee can be directed to and be of value to each member. Like all the literature and material which passes over the Purchasing Agent's desk, the releases of your Educational Committee must be treated categorically by each member in each association. Those things which are of known value to the individual member or individual local should be, and can be obtained and used. If the thing that is needed most does not seem to be available, let your wishes be known.

^{*}Copies or information on material listed should be obtained from the National Association offices through local associations or the District Educational Chairmen.

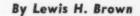
L. H. BROWN, Johns-Manville Corp.

What's Ahead for America?

Government spending theories face critical test in downward business cycle.

Corrective adjustments are now in process, will show effects by end of 1949.

Tremendous opportunities for expansion seen in the decade ahead.



Chairman of the Board Johns-Manville Corp. New York



D. H. LYONS, Presiding Officer

MONG all the important prob-A lems facing management today, consideration of the immediate and long-term economic trend is uppermost. It affects every decision. No business today can operate by itself. What an individual business can do is dependent upon political and economic conditions not only in this country but in the world. It is dependent upon the philosophy and practices of the government in whatever country it is operating.

The Driving Wheel

For example, private domestic investment is the driving wheel of our national economy. By this type of investment I mean private capital expenditures for the purpose of expansion and modernization, together with such subsidiary factors as inventory accumulation. Through private capital expenditures our country has grown great.

But in recent years a new school of economic prophets has sprung up. These prophets do not seem too worried about private capital expenditures. It is their theory that a decline in these expenditures can be offset by increases in sterile public structures, rearmament, and other governmental activities whose costs constitute a burden on a free economy.

We have, in fact, in our country now a hybrid Keynesian-Welfare state. It is not full-blown as yet, but it is in somewhat more than an embryo form. By Keynesian, I do not have in mind so much the various concepts of Maynard Keynes in their original theoretical form. Rather, I am thinking of the elaborate doctrines his followers, selfstyled or actual, have developed with-and more often without-the

consent of the master.

In practice, the objective of the Neo-Keynesians is to smooth out or stabilize the business cycle by farreaching and, if necessary, unlimited governmental intervention in economic affairs. They are not too concerned over any consequences that might result from this intervention, such as permanent inflation, debauchment of money, fruitless and costly public works projects, and, in its most extreme case, the exploitation of national defense and foreign situations for the purpose of forcibly preventing perfectly natural fluctuations in heavy-industry activity.

All of these things are part and parcel of the doctrine that the vast flood of business activity must be regimented, regulated, controlled and impounded into channels where they form an immense stagnant pool instead of flowing freely in a pro-

ductive stream.

This Neo-Keynesian doctrine is fairly well advanced. Though we believe in the principles of capitalism, we must, as realistic businessmen, accept the fact that we live under a government embracing this new religion.



N.A.P.A. President R. O. KEEFER



G. A. RENARD, National Secretary

Address at the Purchasing-Sales dinner meeting of the Purchasing Agents Association of New York, February 15, 1949.



(Left to right): E. B. Fielis, New York Assn.; H. I. Patten, Philadelphia Assn.; R. T. O'Connor, Elmira Assn.; A. H. Schultz, Jr., Baltimore Assn.; N. O. Aeby, New

York Assn.; W. R. Simmons, Elmira Assn.; G. W. H. Ahl, New York Assn.; R. G. McMinn, Philadelphia Assn.; G. A. Renard, N.A.P.A.; L. H. Brown.

Nor, in appraising economic trends, should we expect that the pattern after World War II will follow the pattern of the years following World War I. There are at least four very important differences between the period we are in today and the one following World War I.

First, there is no peace in the world today, as there was after World War I. Rather, there is the "cold war" with Russia, requiring vast inflationary expenditures for armaments and the support of for-

eign economies.

Second, there are much greater backlogs of deferred expansion in this period. We were in the first war only about 11/2 years, but almost 5 years in the second. The first war was preceded by an unstable but relatively normal period of economic expansion. The second World War was preceded by a full decade of depression, during which expansion of all types was abnormally low.

Third, prices and costs are less flexible in this period. All economic producing groups-farmers, laborers, distributors, and even some manufacturers-are more powerfully organized today than in 1920. They are all inclined to prefer a drop in volume, which they hope will be temporary-to sharp reductions in prices to create volume. And many labor leaders seem to prefer temporary unemployment benefit payments) to cutting basic wage rates.

Fourth, as already pointed out, economic intervention by Government has replaced "laissez-faire" as the accepted philosophy of political parties in dealing with the business cycle in its downward phase. The followers of Maynard Keynes, not the followers of Adam Smith, are in the saddle. Our Government today considers itself obligated to play quarterback in the economic game. Its spokesmen are not content that government act as a mere referee to see that the rules are ob-

End of a Cycle

From an over-all standpoint, it seems to us at Johns-Manville that our economy is approaching the end of a long economic cycle that started in 1932. All during this time, our country has been conducting a large scale experiment to test out the Keynesian philosophy of governmental economic intervention. To date these ideas have been tried out only in an era when the trend has been upward. One wonders what would happen to this philosophy during a downstroke of the cycle. Because the experiment has cost the country so much already, there are a number of persons who are reluctant to see it terminated until it has had a complete test.

Perhaps in the not-too-distant future there will be an opportunity to see the experiment through the entire cycle. No one, of course, can predict with any degree of accuracy when the cycle will turn downward. It is my personal opinion that we may experience its completion within the next few years. I say this because the short term trend appears

to be as follows:

There are many evidences that a readjustment of some kind is due if we are to get back into economic balance. The beginnings of the process of adjustment have been going on for more than a year, and by the latter part of 1949 should be more evident to the man on the street.

Demand Almost Filled

An indication that the deferred demand, built up during the depres-

sion of the 1930's and the war, is almost filled, is the reappearance of seasonal variations in many businesses. During this winter many industries, which normally experience a seasonal drop, have found the diminishing seasonal demand has been combined with adjustments arising from the filling of pipe lines. Prompt adjustments of production to demand have been made, and inventories are being held under con-

At this moment we cannot know whether the slight reaction in business we are now experiencing will continue into the final postwar adjustment, or if the seasonal rise this spring, plus the high activity in industries such as automobiles and construction, will give us another boom year in 1949. We of Johns-Manville will scrutinize the extent to which business rises this spring for an indication of what is happen-

I will not attempt to say whether a correction would mean a major depression or whether economic balance will be attained less painfully by piecemeal adjustment. There are several specific factors that point to a possible business correction starting in 1949 and extending into 1950. Private capital expenditures may decline about 5 billion dollars in 1949. Perhaps an inadequate part of this will be offset by increased Government expenditures for defense and foreign aid.

Piecemeal Adjustments

The pipe lines in all stages of business have been filling up since the war. As a result, a large part of the reduction in business investment in 1949 will be in the form of a sharp drop in the rate of inventory accumulation.

During the past year many indi-



(Left to right): D. H. Lyons, New York Assn.; R. O. Keefer, Pittsburgh, National President; J. S. Rutherford, Buffalo, District Vice President; D. M. Meeker, New York Assn.; L. W. Wieder, Lehigh Valley Assn.;

C. O. Minot, New York Assn.; C. M. Bell, Buffalo Assn.; S. F. Heinritz, PURCHASING Magazine; C. J. Miller, Philadelphia Assn.; S. L. Henry, Reading Assn.; J. H. Leonard, New York Assn.

vidual lines of business have had to readjust output to reduced demand by means of lower prices. These piecemeal adjustments now embrace a wide area and include at least forty different individual lines of business.

The trend is toward a spreading out of these piecemeal adjustments, particularly in agriculture. The farm price index has declined about 18% from its peak. A decline of another 10% may be ahead for 1949 unless extremely bad weather shores up the farm price structure. But at present another year of bumper crops is expected, and this naturally would accelerate the downward trend of farm prices. A correction on this scale has many ramifications in inventory, farm buying power, and balance between farm and factory.

Constituting another factor are the high costs in many industries. Because of excessive construction costs, plant expansion programs are being cut back and the outlook for residential building is clouded. In many businesses labor costs are so high that only a small decline in sales is necessary to wipe out profit. And labor productivity is well below standard.

On the monetary side of the picture, the inflationary forces seem about spent unless we start on a new cycle of deficit financing. Large Government surpluses during the past two years have had their effect. A further cash surplus of more than 3 billion dollars is indicated for 1949, even after allowing for a stepup in defense and international spending. And central bank policy has been moving in the direction of restriction, with more steps of this nature a distinct possibility.

The timing and severity of the correction ahead depend to an un-

usual degree on two factors outside of the normal processes of the business cycle. These are relations with Russia and the domestic political situation.

Regarding Russia, we have assumed that there will be no shooting war, and we have allowed for a reasonable limitation on expenditures for defense, for arming other countries, and for aid through the Economic Cooperation Administration.

Regarding politics, the election has determined the continuation of the Neo-Keynesian pattern of governmental economic intervention. We expect, therefore, continued artificial stimulants, a strong labor influence on Government policy, more spending, increased taxes, and the absence of a high note of confidence in business circles.

Against this background, let us discuss industrial building costs. No part of the durable goods activity is more important than the construction industry. The durable goods industries, while making up only a portion of the total national economy, constitute a very important cake of yeast which raises the entire economy when it is present, but leaves it flat and stagnant when it is absent.

Lull in Construction

In spite of rising costs of heavy construction, our country has been going through an unprecedented boom in this type of building. But now plans made during the war and started immediately after V-J Day have about come to an end. Those who make such plans are convinced that a breathing space is in order. They are waiting to resume building when over-all construction costs will be somewhat more favorable, even though they never return to the pre-

war level. The only outstanding exceptions to this general situation are the railroads and the electrical industry. They are continuing to increase their expenditures for new plant and equipment.

Of course, when businessmen build new factories and provide the equipment for increased production, they do so because they consider the long-term trend as being favorable. They do not build on a basis of a two or three-year period ahead.

The psychology and confidence of businessmen are important factors in determining the start of a project. Furthermore, equity finance is available only when general confidence exists. This is one of those intangibles that many people in Washington never seem to grasp. It is a missing nail in the shoe of the Keynesian horse. For want of this nail, the Keynesian knights could lose their battle of Waterloo.

Government and Recession

Having embraced wholeheartedly the Neo-Keynesian concepts, will our Government be able to prevent an economic readjustment from taking place? Because ours is still mainly a capitalistic or free market economy, the Government cannot prevent a recession. The governmental expenditure sector is an enormously greater portion of the total economy than before the war, but it is by no means the major sector.

Since all signs point to a readjustment, the Government would obviously prefer to put an end to it before the 1950 elections, and most certainly before the 1952 elections. We know that the Government has the will to intervene. We know that the Government has fostered and obtained legislation empowering it to take steps aimed at reducing the



depth of a recession, shortening its length, and even largely aborting it if the cold war gets hotter.

The Next Four Years

I am convinced that the next four years can bring completion of a full test of the Neo-Keynesian doctrines that have played such an important part in the economic philosophy of our Government during the past 16 years.

If we face a rather moderate readjustment, you can be sure that the prophets of this established state religion will move heaven and earth to stabilize the economic activity at national income and employment levels far exceeding prewar. If the recession is relatively mild, the Government's efforts will be fairly successful and the American people will probably interpret the result as being favorable to a continuance of government economic intervention.

If, on the other hand, a really severe deflation or a full-fledged depression develops and the Keynesian state is unable to combat it, then this doctrine that was so successful when the business cycle was on the upstroke may well be thrown into the ashcan by the American people when it misfires on the downstroke.

Upward Trend Expected

In the meantime, while we are waiting to see what actually happens in the immediate period ahead, I have great faith in the long-term future of this country. I am convinced that in the decade of 1951 to 1960 we will again resume the upward trend to the attainment of new high standards of living and welfare for our people.

I certainly do not intend to sell the United States short, for I believe that ours is a country of unlimited destiny. The experiences we have been going through during the past 25 years are but an interlude in our history. When we put this behind us, there is promise of a greater era of accomplishment than this young nation of ours has ever experienced.

First, during the decade from 1951 to 1960 our population will increase by perhaps 10 million people.

Second, total industrial production at the top of the next boom, which might or might not come around 1960, could be about 30% greater than in the boom year 1948.

Third, output per man-hour in manufacturing could be 25% greater by 1960 under normal advances, and it could even be 50% or 60% greater if we take into account the present unprecedented capital-investment boom and further mechanization in the years ahead.

Fourth, employment in non-agricultural institutions, in agriculture and in the armed forces should be about 64 million in 1960. With a total working force of 66 million, this would allow for 2 million being normally unemployed.

If we attain some measure of economic balance, and if the Government will adopt measures and a philosophy to encourage rather than discourage business confidence, I can see no reason for being pessimistic about the next decade.

Russia Reaps Victory

The only other problem that might still face us is the one presented by Russia. It seems to me that whereas the United States provided the means with which World War II was won, actually Russia is reaping the fruits of victory. Because of the agreements made by our past and present Presidents, we gave our victory away to Russia.

I do not believe that Russia wants war. The time will come when Russia will be faced with the cold fact that she must get back into her own territory and stay there. We have absolute superiority, if not an outright monopoly, of the means with which to wage atomic war, but, I hope, there will be no necessity of doing so.

When the time comes, I hope we in America will be ready, able, and willing to assure the world a hundred years of peace. I personally believe that we will build the foundation for that accomplishment within the next decade.

It is partly upon that belief and our power to accomplish it that I predicate my faith in a great future for our country. Certainly when you visit other countries and see the measure of their troubles, our own, which may look big to us, are in fact relatively small.

Defeat of Communism

In the last two years the American people have got clearly in their minds that they do not want Communism. Anyone who favors Communism is going to be pretty unpopular with the American people in the period that lies ahead. The people may for a while sanction experiments of the Neo-Keynesian type, but at heart they remain as devoted as ever to our free and democratic way of life.

And so I have a basic belief that Stalin and his police state cannot prevail. In the long run, and by some means, Stalin's state will crumble just as the regimes of Hitler and Mussolini tumbled to the ground.

When the Stalin state does crumble, I hope it will bring about a new era. Then the people of the Western world can again concentrate for a long time on real advancement. They can expend their efforts upon the development of culture and the things that will make the leisure we have won on the industrial front mean something. It should be a period when we can devote our energies not to the destruction of war, but to the constructive efforts of peace.

When that time comes, I sincerely hope that we will have learned some of the fallacies of the Keynesian ideas; that we will again search for the means, consistent with basic capitalism, which with our form of government have made possible this America of ours. For it is the envy of all the world, and represents the greatest development of all time.



Better Interviews for Better Purchasing

By Seth S. Wiley

Purchasing Agent LYON-Raymond Corp. Greene, N. Y. Sales experience is a valuable asset for the man in purchasing work.

To get full benefit of suppliers' information the buyer must be alert and cooperative.

There's a right and a wrong way of conducting interviews for best results.

SMART, well-briefed sales-A man is an encyclopedia of information that the alert purchasing agent will find an invaluable aid to himself and to his business. The buyer, however, must be constantly aware of his company's needs, and he must know how to conduct an interview to enable him to tap this source of information most effectively. If he can quickly draw out the pertinent facts and judge the value of a product with regard to its specific application in his own organization, the benefits will be mutual and far reaching.

Obviously, experience in purchasing involves experience in interviewing and helps to develop good techniques. But there are two sides to every interview, and in a matter of such personal relationship it is highly desirable to have a knowledge, or better still, the first hand experience of seeing the sales-

man's side as well.

For the past year I have had the unique opportunity of meeting purchasing agents as a salesman. Some months ago, this company opened a small territory in a neighboring state as a sales laboratory wherein staff members could make personal sales contacts. Each man was allotted a fixed area which he covered periodically, introducing the material handling equipment manufactured by the company. In the routine sales calls, the men learned at first hand the problems encountered by the company's sales representatives throughout the country, and were better enabled to adapt their thinking and their policies to actual field conditions.

Though the experiment was mainly intended for the sales personnel, I was also assigned a district. The experience was like gazing into a mirror. It revealed some of the weaknesses in my own purchasing technique, some of the little things that are too easily overlooked but which loom large in the success and effectiveness of interviewing, and some opportunities for improved practices for better buying and the building of better relationships

Upon resuming my role as a full-time purchasing agent, I found myself considering the point of the salesman as related to my company's requirements. This and other revisions have substantially increased the efficiency of my department and will, I am sure, not only lower our operating costs but augment our services and value to the firm

The benefits I reaped from my salesman's-eye view of purchasing lead me to heartily recommend at least a short term of selling as a requirement in the training of every purchasing agent. I record my observations here in the belief that some of my colleagues in purchasing may recognize their own reflection in the mirror and profit by my experience.

A Few "Don'ts"

I was surprised to find that the policy of interviewing salesmen in some companies is very much out of date. Various expedients used by some of the buyers I visited conveyed the idea that the main job of the purchasing agent is to say, One or two encounters gave the impression that previous experience as a bouncer was a necessary requirement of the job. Of course it is frequently necessary to give a negative answer, but there is a right and wrong way of saying "No", and it costs no more to do it the right way.

I discovered also that about half of the purchasing agents I called on still play one supplier against another to obtain lower prices. Price is important, but a firm price that is "in line" is the most satisfactory basis for doing business. When trading tractics are introduced, the seller starts thinking about possible short-cuts, and often the small saving that may be achieved threatens a sacrifice in service or maintenance on the product obtained.

Another inefficient maneuver is to keep a salesman waiting an unnecessarily long time. It antagonizes the fellow, and in wasting his time increases the final cost to the cus-

tomer.

A typical occurrence is that the purchasing agent leaves his office to greet the salesman in a small and sometimes crowded reception room with, "What can I do for you?" At the same time he carefully guards the door leading back to his office. This leaves little question in the salesman's mind as to the outcome of the interview. If he had any useful information to offer, the impulse is immediately stifled, and unless he is an unusually persevering fellow his product will not be well presented. Both parties have lost in this encounter.

The purchasing agent who goes on the defensive early in the interview by stating that various department heads have already discussed the product under consideration with a negative reaction, may soon regret his hastiness. This is an excellent way of "brushing off" the salesman, and plenty of us are using it today. But in the event your company wants that same product a short while later - and few purchasing agents can honestly say that this hasn't happened to them-the contact will have to be made anew with a salesman already prejudiced and the buyer in a very weak tactical position.

This article reports the observations made and conclusions reached as the result of a unique experiment in which a purchasing agent devoted part of his time to the role of salesman, calling on other buyers under actual field conditions of industrial selling.

The author has had a diversified experience. He started out as a tool expeditor for Joshua Hendy Iron Works, Sunnyvale, Cal.; was called to Washington as industrial specialist in the Automotive Division, Engine Branch, of the War Production Board; became distributor for the Century Metal-Craft Corporation for two years in the Washington-Baltimore area; joined the LYON-Raymond organization in 1947, being appointed Purchasing Agent a few months later.

His wartime dealings with the executives of many and varied industries impressed him with the importance of improving inter-business relations and the over-all profit to be gained thereby.

An expensive time waster is the purchasing agent who receives a salesman cordially but listens to his presentation with a mind somewhere off in the blue. This fellow voids the interview completely. He not only insults the intelligence of the salesman who tries vainly to reach through the fog, but he puts himself at a sharp disadvantage. The arguments he advances to discourage the salesman merely result in a prolonged and fruitless inter-Since aggressiveness is a prime requisite of good salesmanship, each objection raised will be met and overruled by the man who expects to make a sale. The vantage point of the interviewer is lost when the purchasing agent fails to keep command of the situation and elicit only those facts which may be pertinent and of value to his company.

Hedging as a means of limiting or terminating a sales presentation may have its place in a well conducted interview, but if used thoughtlesly or too frequently, this device loses its value. The insincerity of such a ruse is quickly detected, and the salesman immediately grows wary. He may still try to push for a sale, but he will no longer exert himself to pass along helpful information on the application of his products, so the interview becomes a "dud". On his next trip, he will probably try for a more receptive contact with department heads, and such bypassing is costly both for the supplier and for the customer. This sort of interview not only nullifies one of the main objectives for maintaining a specialized purchasing department, it actually undermines the position of the department.

Good Interviewing

The savings effected by an efficient screening of materials and methods before they are presented to the various departments will am-

ply justify the expense of competent purchasing personnel. The ingenuity and resourcefulness of a supplier's engineering department can often save your firm money. New materials, advanced methods, and old problems solved can be passed along to the benefit of operating departments. But the purchasing agent who has not won the respect and confidence of the salesman has muffed his chance to receive this information. When someone calls with an item which he sincerely believes will be useful to your company and save you money, why not give him a break and let him prove

An important characteristic of a good salesman is the ability to smile. How many purchasing agents have ever tried smiling back? It's a habit well worth cultivating, for the salesman will contribute more to the interview in an atmosphere of friendliness, and you'll be in a position to do a better job of purchasing if he likes you personally.

A prolonged interview isn't necessarily the best interview. Nor is it necessary for the purchasing agent to dominate and direct the course of the conversation beyond keeping it from straying into channels that are not pertinent to his company's interests and needs. The important thing is to give full attention to the points under discussion and to bear constantly in mind the salesman's point of view as related to your own requirements. The salesman appreciates the opportunity of presenting his proposition in his own way. He can usually do a better job if this is permitted, and is better satisfied that he has been given a fair hearing. This sort of objective appraisal has materially shortened the time I spend with each supplier and has given me a better understanding of the products offered.

If you promise to pass along literature to a shop superintendent or department manager, be sure to do

it; don't drop it in the waste basket as soon as the salesman leaves. To create a lasting impression, after you have examined his literature, address a reference slip and attach it in his presence for routing to interested executives. He will return this small courtesy on his next call by immediately contacting you instead of trying to bypass the purchasing department. A phone call to those concerned will quickly determine whether the matter should be discussed further or dropped. A great deal of time can be saved in this way for everyone concerned.

If a purchasing agent has no immediate requirements for products offered, he can and should tell the salesman so with straightforward sincerity, but he will find it advantageous to leave the door open for future business.

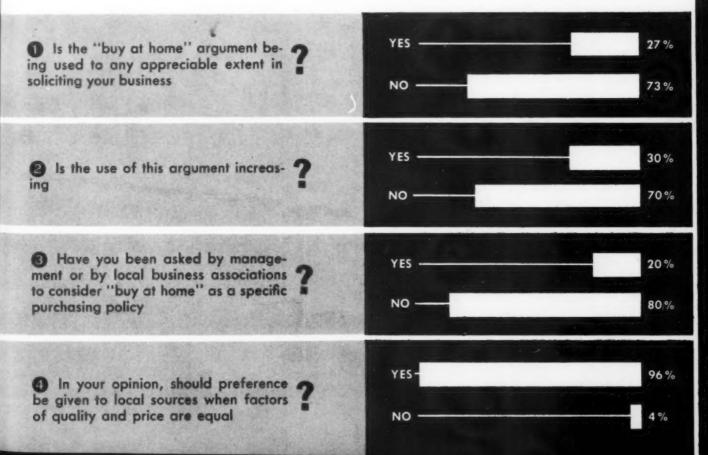
The correlative importance of sales and purchasing to the welfare of industry, and of the individual company, is an established fact. The added expense of incompetent selling or buying must show up eventually in the cost of the finished product. If purchasing agents conducted more cooperative interviews, there might be less emphasis on aggressiveness in salesmanship and more on a concise representation of facts.

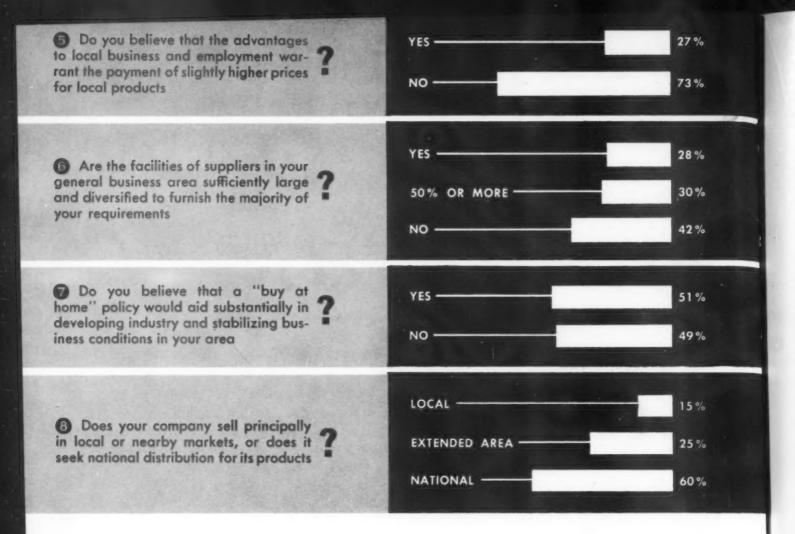
When salesmen talk shop in hotel lobbies, are you known as a square dealer and one who is "on the ball", or is the word passed along that the best way to reach your company is through the other department heads? The dignity, as well as the effectiveness, of our profession is our own responsibility.

The LYON-Raymond Corporation's policy of maintaining good relations with its suppliers was established early in its business history. George G. Raymond, Sr., who has been president for 27 years, attributes much of his company's success to this friendly cooperation between vendor and customer. In the beginning, as in many American enterprises that started on a relatively small scale, it was the president himself who talked with the salesmen, exchanged ideas and learned from them even while he procured the materials for his products. The tangible benefits received and the advantages which can be passed along to customers as the result of good will thus cultivated, insure the continuance of sound business relationships as a fundamental policy in the company's operation.

Will A "BUY AT HOME" Policy Aid Business?

Industrial buyers in several areas are being asked for active support of "buy at home" campaigns sponsored by state and local agencies and Chambers of Commerce. A typical argument runs: "All business we can keep (in Connecticut) will be mutually helpful to all of us in maintaining high economic health and in helping to provide steady employment." In the past, such programs have been a characteristic symptom and outgrowth of business recession. This survey is an attempt to measure the extent of the "buy at home" movements and what a national cross-section of purchasing executives think of such a buying policy.





WHAT THEY SAY

"The West Coast needs industries and resulting payrolls to stabilize our economy. Every effort should be made by those of us in this area to support our own products."

"These are United States. They should not be broken into areas working one against another."

"Freight rates from beyond the Rocky Mts. usually nullify foreign price advantages." (West Coast P.A.)

"Our entire area (Southwest) is in a period of industrial growth. Any effort we can make to encourage the growth of local suppliers to the point where their services are adequate will be to our mutual advantage."

"Our laws require us to give preference to our own industries within the state." (State P.A.)

"Everything being equal, we never follow the policy of having 'all our eggs in one basket', as too many things can happen within a single industry or locality which might seriously retard and impede production."

"'Buy Local', if carried to its ultimate conclusion would ruin many businesses in certain localities, whose markets elsewhere would be lost. This is also true in international trade. If we will not buy abroad, we can not sell."

"Since we are a Southern institution, we feel that every step toward bringing in, or increasing our industrial activity is a step forward."

"A local manufacturer that cannot meet 'foreign' competition is not set up on a firm basis, and cannot expect to survive."

"A company expecting local support should reciprocate.

"A 'Buy at Home' policy is definitely un-American, and can be likened to the politician at Washington who favors local benefits and disregards the welfare of the nation at large."

"The 'Buy at Home' policy creates good will and in emergencies this pays off tremendously."

What's Wrong With Government Purchasing ...and what can be done about it?

By A. N. Wecksler

Report of the Hoover Commission analyzes deficiencies in present purchasing system and makes recommendations for improving the supply organization and procedures

I. THE PROBLEM

THE United States Government is big business . . . spends more than six billion dollars a year for new materials, supplies, and equipment for the regular activities of civilian and military agencies . . makes enormous purchases for export . . . operates a million or more motor vehicles . . employs 150,000 workers in supply operations, paying these workers \$440,000,000 annually in salaries.

No one has offered a rational means of taking the bigness out of Government, but former President Herbert Hoover, as chairman of the Commission on Organization of the Executive Branch of the Government, points out that along with bigness there is inefficiency—and this, he says, can be minimized, if not altogether eliminated.

The Hoover report on the weaknesses of the Government's supply operations has been submitted to Congress, with specific recommendations for improvement, and now begins the long drawn-out process of getting the Congress to do something about it.

For PAs it is significant that the report on supply and the recom-

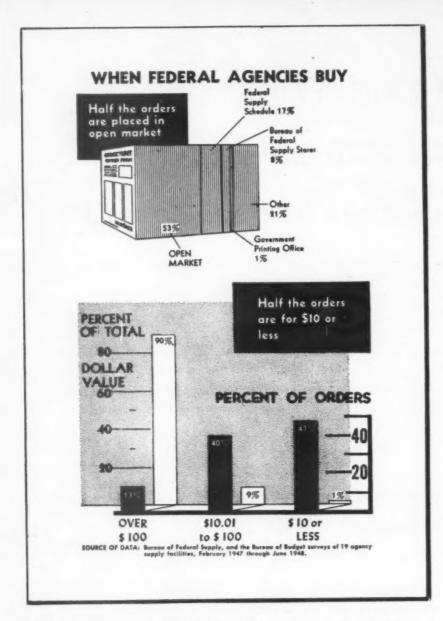
mendations for improvement were made by Russell Forbes, who has for many years been an important figure in the field of governmental purchasing through his work as Commissioner of Purchase for the City of New York, and more recently as a consultant to the Director of the Federal Bureau of Supply, U. S. Treasury Department. Prior to that experience, as Assistant Secretary of the National Association of Purchasing specializing in government buying, as a teacher of Government at New York University, and as an executive in associations dealing with the administration of public affairs, he has been the author of much sound legislation on purchasing at the state, county, and municipal levels, including the statute which he subsequently administered in buying for the world's largest city. He has had a unique vantage point in studying Federal purchasing practices, and his recommendations are those of a practical technician.

Assisting in the study was a committee of outstanding purchasing executives, distinguished not only by their personal position and ac-

complishments in and for their respective companies, but also for their unselfish services in the professional and public interest. In this key group are two former Presidents of the National Association of Purchasing Agents, one former President of the National Institute of Governmental Purchasing, one former Chairman of the Purchase



RUSSELL FORBES



The inadequacy of the present system, nominally centralized in the Federal Bureau of Supply, is indicated by the fact that only 25% of the orders issued by Federal agencies are covered by the Federal Supply Schedule or obtained through F.B.S. stores. Despite the Government's position as a large scale buyer and user of commodities and supplies, only 13% of the orders issued are in the amount of \$100 or more. Almost half of the orders are for \$10 or less, where the cost of purchasing is greater than the value of the items purchased.

and Stores Division of the Association of American Railroads, and the current President of the American Standards Association. Five of the men have had first hand experience in the wartime purchasing and production boards of the Government. Four of them have been recipients of the J. Shipman medal.

The Hoover report, shaped up by Forbes and his associates, points out some of the major deficiencies of Government procurement and management of supplies. It points out that one of the major weaknesses in Federal purchasing stems

from the lack of any central body to coordinate Government purchasing activities effectively, although such a policy has been affirmed in previous legislation.

Small agencies buy for themselves, although the volume of their purchases does not permit the employment of a competent staff. In common use items, consolidated orders for several agencies by a single purchasing office would achieve large savings. The Bureau of Federal Supply, which was established as the central supply organization, has insufficient funds to

purchase on a centralized basis. A properly organized central supply service could almost completely eliminate purchasing offices in the smaller agencies.

Specifically, it was found that:

- Purchasing requires a high degree of professional competence, yet many purchasing offices are not manned with competent personnel.
- 2. Purchasing operations are unplanned. As evidence of this it is estimated that approximately half of the several million purchase orders issued annually are in the amount of \$10 or less. Since the cost of processing a purchase transaction is greatly in excess of \$10, due in part to the "outrageously complicated and detailed" paperwork involved, the overhead cost of purchasing in such cases is more than the cost of the goods themselves.
- Purchasing officers lack information and funds necessary to schedule purchases so as to take maximum advantage of favorable market conditions.
- 4. Purchasing officers have failed to develop cost records and other tools essential to an effective job of purchasing.
- 5. Purchasing operations have degenerated largely into the routine practice of soliciting bids and awarding contracts to the lowest bidder. An economical job cannot be expected unless purchasing officials are granted sufficient latitude to negotiate small purchases, to restrict competition to reliable vendors, and to give sufficient weight to quality of the product in awarding contracts.

Other conditions reported to the Commission by the subcommittee or "task group" on purchasing included the finding that a "Washington bottleneck" exists that excludes small but reputable firms from medium sized contracts that they could handle effectively if contracts were awarded on a geographical zone basis. The concentration of purchasing activities in Washington was decried, since Washington is not a major market center.

The office of the Comptroller General is described as imposing a strait jacket on buying officers. Since the General Accounting Office must approve all purchases before payment is made, purchasing officials are unwilling to risk personal liability by getting out of the rut of established routine.

An extremely casual attitude in respect to inventories has resulted in the accumulation of stocks that are, in many cases, far in excess of actual requirements. Good house-

keeping, and the application of common principles of inventoy control, as practised generally in private business, could effect substantial economies in this phase of the sup-

ply operation.

Altogether, the avoidable wastes in the present supply program, are measured, not in millions, but in billions of dollars.

This is the "Task Force" or Subcommittee of the Hoover Commission that directed the study of the Federal Government's purchasing practices and formulated the recommendations for improvement:

RUSSELL FORBES, Chairman formerly Commissioner of Purchase City of New York

W. A. BETTS
Director, Division of Purchase and
Contract
State of North Carolina
Raleigh, N. C.

HARRY L. ERLICHER
Vice President, Purchasing
General Electric Company
Schenectady, N. Y.

ROY C. HABERKERN Vice President, Purchasing R. J. Reynolds Tobacco Company Winston-Salem, N. C.

CARL G. ILGENFRITZ
Vice President, Purchasing
United States Steel Corporation
Pittsburgh, Pa.

THOMAS D. JOLLY
Vice President, Purchasing and
Engineering
Aluminum Company of America
Pittsburgh, Pa.

GEORGE A. RENARD
Executive Secretary-Treasurer
National Association of Purchasing
Agents
New York, N. Y.

JOHN P. SANGER
Vice President, Purchasing
United States Gypsum Company
Chicago, III.

CHARLES E. SMITH
Vice President, Purchasing
New York, New Haven & Hartford
Railroad Co.
New Haven, Conn.

II. THE CAUSES

REASONS for these deficiencies of Government supply operations are traced by the Hoover report to the following:

1. Supply is not fully recognized as an important executive function. At a time when personnel and budgeting have achieved status as vital staff functions, there has been a continued failure to appreciate fully the relationship of supply to Government efficiency. There is no comprehensive Government-wide system that gives adequate emphasis to the many phases of supply.

2. This failure is reflected in an inadequate supply organization for the Government as a whole, as well as for the various departments and agencies. The Bureau of Federal Supply, which is intended to be the supply organization for the Federal Government, is inappropriately located in the Treasury Department, where it has neither adequate authority nor facilities to do a satisfactory job. The departments and agencies do not have effective supply organizations. The result is a confused Federal supply system where agencies compete with one another for scarce commodities, maintain duplicating storage facilities in the same localities, and operate as many as 17 different systems of property identification at one time.

3. This failure is reflected further in the personnel system, which does not provide competent staff to fill supply positions. Although purchasing is a highly skilled profession that requires intimate knowledge of trade conditions and markets, salaries paid in Government agencies are inadequate to recruit and keep persons with the required professional competence. Personnel processes fail to make proper acknowledgment of the skills required.

4. A maze of laws and regulations surrounds the whole process with unnecessary red tape. The emphasis of the laws is not on promoting efficiency and economy, but upon preventing fraud. Over-regulation encourages routine buying and prevents economy and the exercise of initiative. Purchasing is consumed in red tape. It is estimated, as cited above, that on more than half of the purchase orders issued by civilian agencies, the cost of paper work exceeded the cost of the items purchased.

5. The system of budgeting and appropriating funds fails to emphasize the need for advance planning of supply needs and fails to provide adequate control over supply expenditures. Budget officers must estimate their requirements nearly two years in advance and, as a result, most estimates are mere guesses, usually on the liberal side to play safe. Funds remaining near the end of a fiscal year are frequently expended for supplies and equipment for which no specific need exists, in order to avoid returning the money to the Treasury. Advance schedules of buying are inadequate. Purchasing officers do not participate to the necessary degree in budget and operational planning.

6. Some phases of the supply operation are regulated by statute as well as by decisions of the Comptroller General, whereas other phases have neither legislative nor administrative sanction. Purchasing is regulated both by statutes and by detailed administrative rulings. Disposition of surplus property is governed by more than 369 separate statutes. On the other hand, storage and issue, traffic management, standard specifications, inspection, and property identification have almost no legislative sanction and are governed by a very limited number of administrative regulations. The result is that some of the mutually dependent supply operations are so closely regulated as to stifle initiative and hamstring efforts to improve the supply system, whereas in other operations there is insuf-

ficient legislation to provide basic controls or to support constructive administrative action.

7. The Government has failed to compile adequate cost and statistical records which are needed for the efficient management of supply operations. Most agencies are overburdened with a surplus of complicated statistical and other records, but few agencies have the type of data for making intelligent budget estimates and management decisions on supply requirements.

III. THE CURE

CURE for these ills in the Government supply program is proposed in the following recommendations:

Recommendation No. 1

Enact legislation which will repeal the conglomeration of existing statutes, clear the books of present restrictive and often conflicting decisions and regulations, and provide the basic principles for an effective

supply system.

This legislation should be designed to provide a charter for the Bureau of Federal Supply in the Office of General Services (an executive branch of the Government which would be established under the Hoover plan to coordinate supply, records management, and the operation and maintenance of public buildings) and to permit the development of effective and economical Federal supply practices.

Recommendation No. 2.

Enact legislation to apply the principles of the Armed Services Procurement Act of 1947 to buying

by all agencies.

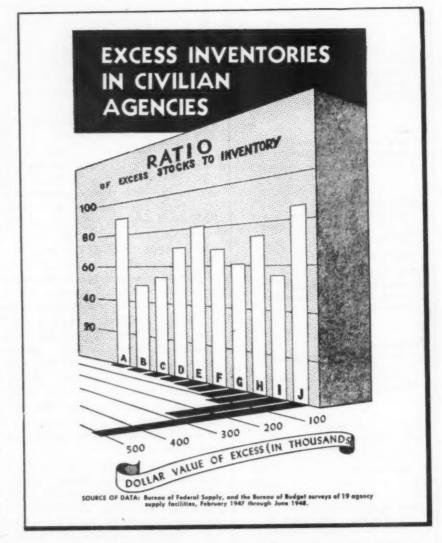
This Act permits contracts to be negotiated under specified circumstances and conditions, and raises from \$100 to \$1,000 the ceiling for purchases without competitive bids. Such legislation is fundamental to achieving worth-while improvements in supply operations. This authority should be lodged in the President.

Recommendation No. 3.

Establish a Supply Policy Committee composed of representatives of the Bureau of Federal Supply and the National Military Establishment to coordinate civilian and military supply operations.

Although the Commission recognizes that the wide differences in supply problems make it undesirable to unify civilian and military supply activities, there is need for close coordination between the two systems. There are many items of

common use, such as medical supplies, where purchase and storage by one or the other (but not both) would result in major savings. The Hoover Commission task force report on medical services recommends strongly a single agency to purchase all medical supplies, military and civilian. It is also desirable for civilian and military agencies to coordinate their activities as they relate to



Government agencies have inventories of purchased supplies worth more than 27 billion dollars—the exact amount is not determinable for lack of adequate controls and records. At a conservative estimate, from 2½ to 3 billion dollars of this is in excess of requirements, and hired storage space is added to normal carrying costs. In 10 of 19 agencies surveyed, ratio of excess stocks to inventory ranged from 50% to 90%; instances were found where stocks of certain items were equivalent to 50 years' requirements. Needs must be guesstimated up to two years in advance, and it is traditional practice to invest any unexpended funds at the end of the fiscal year in additional supplies, regardless of need, rather than turn back any portion of an appropriation.

specifications, property identification, and traffic management.

It is for these reasons that the Commission recommends that a Supply Policy Committee be established. This Committee should not be formalized by statute, but should serve at the pleasure of the President.

It would be the function of this Committee to develop policies and rules on supply operations common to both the military and civilian agencies and to make Government-wide purchase, stores, inspection, testing, and other assignments. It would assign responsibility for special programs such as stockpiling, and would settle disputes which might arise in connection with the integration of civilian and military supply systems.

Coordination between civilian and military agencies is particularly important in the development of a standard property identification system and in the development of standard specifications for items of common use. For example, in purchasing such items as medical supplies and equipment which are used in large quantity by both the military and civilian establishments, this Committee could assign the task of purchasing such items for the Government as a whole to the agencies which are best suited to make the purchases.

Recommendation No. 4.

Establish a Bureau of Federal Supply in the Office of General Services with competent personnel and clothed with adequate authority to provide the leadership necessary to achieve in the executive branch an efficient supply organization which would also coordinate with the National Military Establishment.

A major function of this office should be the formulation of policies and regulations, on behalf of the President, to govern the supply operations of the executive branch. Its task would be to view the supply problems of the executive branch as a whole, and to adopt such policies and to provide such assistance to the agencies as will bring about a supply system that is effective and economical.

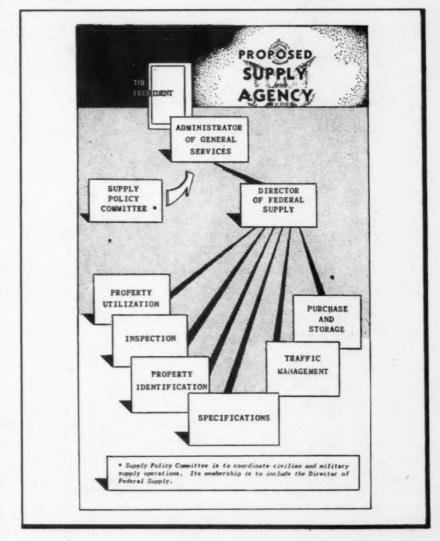
The Commission does not recommend a specific internal structure for the Supply Bureau, stating that its organization must be geared to existing circumstances and there-

fore must be decided upon by the Director of General Services and the Director of the Bureau of Supply. It does, however, outline the activities which should be assigned to the Bureau—purchase and storage, traffic management, specifications, property identification, inspection, and property utilization.

A primary responsibility of the Bureau would be to assist the President in the formulation of policies, regulations, and practices which are to govern all phases of the supply function in the executive branch and to make administrative audits to determine compliance therewith. Through its membership on the

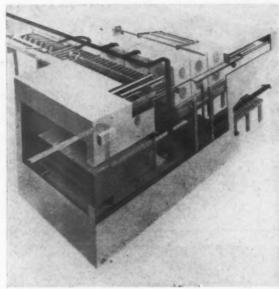
Supply Policy Committee, it should assist in the formulation of those policies, regulations, and practices which are to be common to both the civilian and military agencies.

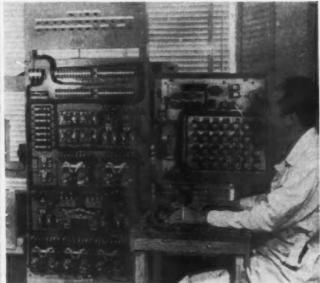
In actual procurement, the Bureau would assign responsibility for the purchase or storage of commodities peculiar to the use of an agency to the agency best suited to make such purchases or store such commodities; designate certain agencies to purchase specified supplies for all agencies; and award contracts to vendors for common-use items, these contracts to be utilized by all agencies in the purchase of such items.



The recommended plan divorces the operating service functions—procurement and supply, records management and storage, and maintenance of public buildings—from the direct administration of Federal departments and agencies, and sets them up on a business basis. It correlates the various phases of supply to permit a consistent and integrated purchasing program; is flexible as to centralized vs. decentralized buying or delegated authority, bid vs. negotiation, contract vs. open market purchases, utilizing professional skill and judgment to suit the method to particular times and conditions. An advisory policy committee would coordinate and decide questions of conflicting interest.

Saving with Electronic Equipment





Phanton view of automatic pallet loader with electronically controlled conveyor lines. Packaged products are automatically assembled in pallet loads without manual handling of any kind, and

loaded pallets are stacked in tiers for removal to truck or warehouse. Right — Typical "mockup" test unit, checking to assure flawless operation before electronic production equipment is installed.

Greater first cost is quickly offset by savings in production costs.

Four leading questions provide the key to intelligent cost comparisons.

Many effective applications are found in finishing operations.

By Thomas A. Dickinson

THE seasoned purchasing agent knows that a good many types of well standardized production equipment can safely be bought on the basis of initial-cost comparisons, because the variations in performance of competitive units made by reliable manufacturers are apt to be insignificant. However, this rule cannot be applied indiscriminately. In the case of special purpose machines, and particularly in dealing with types of equipment of relatively recent development, a more searching analysis of performance and,

operating costs is essential. For example, where the use of electronic production equipment is being considered, initial-cost comparisons are feasible only after the following questions are answered:

How many workers will be required to make efficient use of this or that production unit?

How much plant space will be needed for the production setup?

How often will inspections and repairs be required to assure and maintain maximum production?

How great will be the losses due

to wasted time and materials?

When the answers to these questions are ascertained, the relatively high initial cost of electronic controls can be evaluated in the light of quantity and quality of output, and operating costs. On this basis, it is frequently found, over a period of six months or a year, that savings made through the use of such equipment may be equivalent to the entire original investment.

For instance, in the establishment of a new Pepsi-Cola plant at Los Angeles recently, purchasing and engineering officials learned that an electronically controlled automatic pallet loader would cost almost three times as much as the manual loading equipment previously used in the bottling shop. Yet they decided to make the larger investment, because:

(1) The electronic equipment, operating at a direct cost of less than ten cents per hour, saved a labor cost of six men per shift at an average wage rate of \$1 per hour, for the same amount of work.

(2) Approximately the same amount of plant space was required for either type of equipment. (3) One inspection every six months and one regularly scheduled overhaul per year would assure efficient operation of the electronic unit, whereas the human factor of carelessness alone would necessitate higher maintenance costs and down time with manual loading equipment.

(4) Losses due to the breakage of bottled soft drinks would be re-

duced by at least 75%.

Those who remember the erratic performances of the first electronic products—for example, early types of radio sets—may find it difficult to believe that the newer types of industrial electronic equipment are virtually foolproof in terms of operational simplicity and rugged reliability. Yet it is a fact that made-to-order units in a wide variety of industrial applications have been utilized constantly for more than three years at a time without requiring repair work of any type.

"Such efficiency is possible," explains Don G. Gumpartz of Industrial Electronic Engineers, Los Angeles, "because we now have vacuum tubes which can withstand more than 100,000 hours of operation without appreciable deterioration. The attainment of top performance is assured through the use of war-developed mockup testing techniques, whereby the functions of any and all electronic controls and accessories are checked and improved if necessary before the equipment is subjected to actual

operational conditions." As an example of the efficiency that has thus been achieved, he cites the case of an Oregon lumber mill, where 20 men were previously required to glue-assemble wood parts on a manual production basis, after which each assembly had to be dried for at least 12 hours before it could be handled for shipment. An electronically controlled hydraulic assembly press was made to order for this mill, and has now been in operation for more than a year simultaneously producting three as-semblies at six-second intervals, without so much as a minor production failure. This equipment is operated by a crew of four menthree to feed the hoppers, while a fourth man unloads the completed assemblies. The product, therefore, is immediately ready for packing and shipment, since the glued components are dried and set with highfrequency heat, so that time and an

In the mass production finishing of both metallic and non-metallic

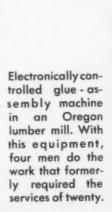
extra handling operation are elim-

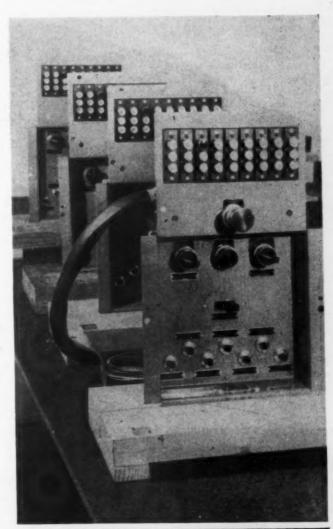
articles, probably the greatest time and money saver that has been developed in recent years is the process known as "electrostatic finishing", whereby paint-spray guns are mounted on stationary fixtures so that they will automatically coat conveyor-borne articles via a polarizing electric field. The articles to be coated are grounded by their conveyors, so that sprayed paint particles are attracted thereto like

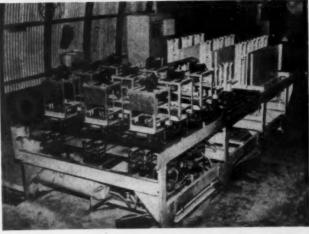
the metallic particles in an electroplating bath are attracted to a negative deposition surface. Therefore, in addition to eliminating the need for highly skilled spray gun operators, electrostatic spraying has simultaneously accelerated production finishing work and minimized the normally great losses of sprayed coating materials.

Because it necessitates the use of special electronic controls and fix-

Typical control panels for electronic production equipment: Unskilled operators can easily learn to actuate the knobs and switches, while signal lights indicate how the equipment is performing.







inated.

tures, electrostatic spraying involves an initial equipment investment which may be more than five times as great as the cost of conventional spray guns and ventilated booths. Yet alert purchasing executives such as Frank I. King of Alhambra, California, have found through simple arithmetic that such a relatively high investment can yield production savings ranging from \$50 to \$100 per hour! King, incidentally, purchased what is probably the smallest electrostatic spray setup that has yet been developed, occupying only about ten square feet of plant space.

A recent variation of the electrostatic spraying process is electro-"detearing". whereby dipcoated articles are passed over a high-voltage grid on an electrically grounded conveyor, so that unsightly "tear-drops" will be electromagnetically withdrawn from the lower surfaces of the articles before the coatings are dried. This process is actually more expensive than conventional dip or flow-coating techniques, but increases the practical usefulness of the latter to such an extent that the Norge Refrigerator Company and other manufacturing organizations have been able to save thousands of dollars simply by eliminating the need for relatively expensive spray finishing

The use of electronic equipment is generally paralleled by the use of d-c electricity in varied increments of voltage, and for this reason many plant officials have been reluctant to contemplate the advantages of electronics, feeling that they would be obliged to expend large sums for storage batteries or dynamo power plants. It is an understandable objection in view of the fact that even many experienced electricians are not yet fully acquainted with the potentialities of modern transformers and rectifiers. The truth of the matter, however, is that the majority of electronic devices can be powered with the current in an a-c factory circuit if equipped with a few low cost accessories.

This, of course, does not mean that generators or related types of equipment should never be purchased. On the contrary, this question is one that calls for the same sort of analysis of initial and operating costs as indicated for the production equipment itself. It will be found in some cases that electrical energy is used to such an extent in a plant that the installation and maintenance of a factory power plant is appreciably less expensive than the cost of public power. On the other hand, there are many instances where such an expenditure would not be warranted. The factors of the power requirement should be investigated and balanced carefully and thoroughly before the decision is made one way or an-

The possibilities in such a study are tremendous. Just what it can mean is strikingly demonstrated by a recent analysis made by Milton Edwards of the Custombelt Company, San Francisco. Engineers at the plant had authorized the purchase of a \$2,500 dynamo as a source of power for an electronic installation requiring a microamperage current at 7,500 volts. Being an astute purchasing agent, Edwards decided to find out whether this purchase was really necessary. Two hours of intensive reading on electrical currents and power sources at the public library convinced him that it could be done just as well and far more economically by other means. An interview with a consulting engineer confirmed his conclusions. Result: the aforementioned electronic equipment is now being powered by a-c city current at a cost of less than 5 cents per day, via the following installation on the line:

TOTAL\$21.00 Total investment in this case amounted to less than 1% of the contemplated power installation in initial cost, and specific operating and maintenance costs were eliminated. The effects may not always be in this startling proportion, but the principle is well illustrated by this case. Careful analysis is important.

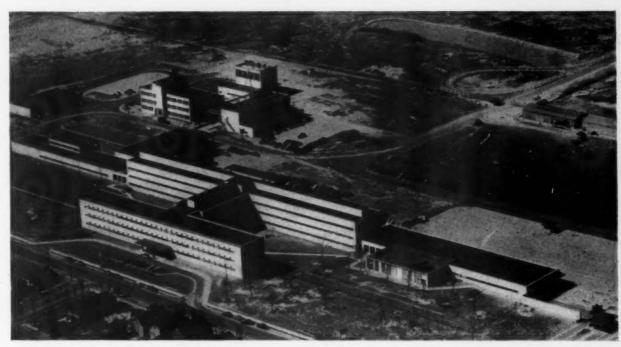
Electrostatic spray finishing equipment. The only manual operation in this process is loading and unloading the conveyors. Right — this electrostatic "detearing" equipment issued on dip-coated refrigerator shelves. Production costs have been reduced by more than \$50 per hour.



RESEARCH —

Bountiful Bearer of Gifts

· By Grey Leslie



(Photographs by courtesy of the Standard Oil Company of Indiana)

Thirty years ago, intelligent people were predicting the depletion of our oil reserves and writing the obituary of the petroleum industry, but the scientists continued their patient work. Today, after three decades of constantly increased demand and consumption, including the most destructive war in history, great research laboratories carry on the work and stand as evidence of the industry's faith in an even brighter and more useful future. Illustrated is the Whiting (Indiana) laboratory of the Standard Oil Company of Indiana. It is designed to house a staff of 340 chemists, chemical engineers, physicists, biologists, and other scientists, along with 800 technicians and assistants, working to find new products, better methods, more efficient processes, broader applications.

M UCH of what we call "common sense" and "experience" to-day is the result of the studious research of yesterday, while the new ideas and techniques advanced by the research efforts of today will provide the "common sense" and the "experience" of mankind tomorrow.

Our spectacular achievements in scientific research in war-time do not represent its principal claim to our enthusiastic support and hope for its wider extension. It is incontrovertible that research pays handsome material dividends in peace-time as well; but, far more important, its chief results in peace-time are the immeasurable increases in the human comforts it makes possible.

Research pays handsome dividends in better living, and serves the profit motive too.

Modern competitive industry recognizes that research is essential to survival.

Imagination, patience, and sound scientific method are the elements of progress.

Dr. I. Bernard Cohen, Professor of Science at Harvard University, has published a book entitled "Science, Servant of Man", which is a direct response to President James B. Conant's book, "On Understanding Science", reviewed in Purchas-

ING in March, 1948, under the title, "Science and the Layman". In that book, Dr. Conant stated: "If a business man understands the historic relation of science and the arts, he has a solid basis for forming opinions." In setting forth that relation-

ship, he stressed that it is only by following a program of fundamental research aimed at increasing knowledge, even for the sake of knowledge alone, that modern man will find the cures for disease and the easier, peaceful, better living that the fruits of science can make possible. His colleague, Dr. Cohen, now develops that thesis by the case history method.

Dr. Cohen's book is a comprehensive presentation of the methods of scientific research, using specific examples from the long and fascinating history of science to establish the principles and conditions of successful research. It explores, freshly and keenly, the motivating spirit of researchers at work, and the wide variety of circumstances, both contrived and accidental, which brought success.

The examples chosen are dramatic and timely. They are of especial interest to purchasing agents because the results are current history, actively inscribed on the materials and products lists of today's industrial buyer. We take for granted so many of the practical consequences of these laboratory discoveries, that Dr. Cohen's book at this time serves a dual purpose. It throws new and much needed light on the origin and early labors of pioneer researchers in a wide field of human endeavor. and it adds materially to our knowledge of the reasons for our American industrial superiority and our American culture, and how we achieved them.

The "accidental" type of scientific discovery has been amply dramatized in the past, and has always excited public admiration—often wide-eyed wonder. There has been a broad circulation of the happy accidents of Goodyear's rubber-onthe-stove, Edison and his talking machine, Bessemer's sudden jet of air in a steel furnace, and in an earlier day, Newton and a falling apple, Watt and a boiling kettle, and countless hundreds of others. But we often overlook the fact that the scientific researcher accepted many preconceived notions as a challenge, and assiduously applied himself to a study of why certain things acted as they did or why certain things couldn't be done. The thousands of experiments that ended in failure before Edison found a suitable filament material are an integral part of the story of the every-day wonder of the incandescent electric light.

It may be interesting to recall that the telephone was invented by a teacher of the deaf, the telegraph by a professor of physics, the first plastic, (celluloid) by a printer and the Diesel engine by a mechanic. These inventors whose products mean so much to the comfort and convenience of mankind, were not all skilled scientists nor were they all schooled in the detached atmosphere of academic stimulation. Some, indeed were more mechanics than scientists, but however we identify them today, we recognize their talent for research and gratefully acknowledge their genius.

Dr. Cohen tells us that "basic" science is concerned with the establishment of the fundamental facts of nature and her ways, without particular reference to any utilitarian use. Some of us may not fully agree with Dr. Cohen's nice distinction between "basic" and "applied" science, nor will too many of us agree with him when he says that fundamental or basic science is not motivated by producing practical and profitable results. Such an attitude of aloofness and unconcern with practical results may have obtained in an earlier day, but in our time it is becoming pretty well recognized that only by constant research at every level of industry activity, can any manufacturer keep abreast of the times and not find himse outstripped by his more alert competitors. The modern "applied" scientist who turns out rayon, plastics, new engines, planes, paints, and a whole catalogue of new materials and products, is most frequently a most efficient combination of a "basic" and "applied" researcher.

We can readily summon adequate evidence to prove that much modern research derived its impetus from a definite search for the practical and profitable, and in searching for answers or solutions, it frequently turned up many ancillary and highly beneficial by-products. The new by-products often initiated whole new industries, but the first search was for an improved method of performing some old operation.

Aside from some ideal situation, where a group of serious minded scholars, comfortably and securely endowed or patroned, could indulge in pure scientific exploration, it is doubtful if the idea of material reward and the motive of profit, in some form, immediate or future, were entirely absent.

Historically, it was not until the cannon was introduced that scientists interested themselves in the compressibility of gases, gun-pow-

Basic research in the test-tube stage still has an important place in petroleum industry development.



der combustion, the strength of metals, and a host of other problems adjutant to that sort of warfare. Their first purpose was to extend the range of artillery fire and to make it more accurate and deadly. That turned up a fund of information on ballistics, and out of that fund of knowledge a whole new cycle of scientific exploration was set in motion.

The properties of liquid fuel and lubricants had to be ferreted out in the same age as the internal combustion engine, if the mobile world was to be served with the speed and efficiency demanded by the automobile. The rapid development of the motor car and the stupendous demand for automotive fuels and lubricants offer perhaps the most graphic examples of scientific research keeping pace with the tempo of the times.

Many of us recall that at the end of World War I it was felt by many that the petroleum industry had reached its peak and was about to go into a decline. Petroleum reserves were believed to be sufficient to last only about fifteen years. Gasoline sold for around thirty cents a gallon and the elder LaFollette predicted the imminence of a dollar a gallon for it.

At the end of another tremendous-

ly oil-consuming World War, the average service station price of gasoline was only 15.5¢ per gallon (ex taxes). Instead of using up our oil reserves in the predicted fifteen years, we managed to find enough to keep us going at an accelerated rate for almost twice that long; and we have definitely proven reserves of petroleum four times as large as the total ultimate reserves estimated twenty-eight years ago. In addition, the petroleum has been converted into far better products than were being made in 1918.

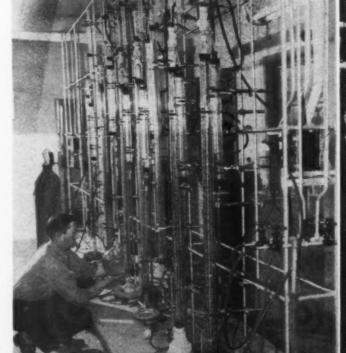
The dynamic factor which made these achievements possible has been improved technology, resulting from research, and its application to every branch of the petroleum industry.

To illustrate, let us start with methods of finding oil. Surface geology had about shot its bolt in this field by 1920. There then came along a whole group of new and highly sensitive physical instruments—the gravity meter, the magnetometer, and the seismograph. Operating on the surface of the earth, they permit rock formations to be mapped several miles deep in the earth, and have made possible the discovery of many new fields where there were no surface indications.

In 1918 the physical limit of drilling was about 5,000 feet. New drilling methods, better steels, and many other inventions, as well as generally better engineering, have now made it possible to drill as deep as three miles, thus trebling the volume of earth from which we can recover oil. Novel electrical logging devices, sent down a new well, use electrical methods or gamma rays to give a cear picture of the rock formation all the way down. They permit accurate contouring of structures and keep productive sands from being overlooked, as frequently occurred in the earlier days. By gas recycling and water flooding, together with scientifically controlled production rates under proration, it is now possible to recover 60 to 70% of the oil in many producing areas, as compared with 20 to 30% in the earlier days. The recovery through a single 6" hole of 70% of the oil which underlies 20 acres, at depth of from one to three miles is a real scientific achievement.

Extensive research has shown how to make gasoline and other petroleum products from natural gas at prices around present ranges and even to make it from coal and lignite at prices only five or six cents a gal-

The test-tube grows up: fractionating columns in the analytical laboratory add to knowledge of the product.



A full-fledged pilot plant, one of many, provides data on processes for making chemicals from petroleum.



lon higher, when and if our petroleum reserves become inadequate.

It would have been a tragedy, for the public and for the automotive and petroleum industries, if both had not gone in heavily for research when they did. The outcome of World War II might have been fatal for us if the ground work had not been prepared for further exploration. It would be pleasant to be able to say that the oil industry's research was due to a broad, public-spirited interest in the security, welfare, and comfort of the people of the country. The real reason why the industry has spent hundreds of millions of dollars in research and development during the past twenty-five years is that compensatory and legitimate profits were almost assured.

But without quarreling about the motives of research, Dr. Cohen's book fills a need to supply laymen with some idea as to how natural science research is carried on, what preparations are essential for organized fact-finding, and how the entire welfare, economy, and culture of a people can be affected by it.

It will have particular interest to purchasing agents because of the range of its coverage. Electricity and radio, synthetic rubber and nylon, plant stimulants and insecticides, blood transfusions and pharmaceuticals, fossils and fungus growths, penicillin and medicaments, the effect of the sun's corona on radio transmission, exploration for new materials—each case is examined for the source and sequence of ideas, the interplay of scientific thought and the demands of society which stimulated the research.

It will be news to many, no doubt, that the story of hybrid corn did not begin with the Wallaces. Some of its origins can be traced to the Moravian monk, Mendel, over a century ago. Mendel's ideas were further developed over the years until finally, in 1947, more than forty years after the widely extended experiments, hybrid corn produced ten bushels more per acre in America than ordinary seed corn. In our day of impressive multiple digits that means an excess of almost eighteen million tons of food grains, or about the amount of food sent to Europe as relief in that year. It constituted the profit from the research in heredity started more than a century ago.

In the field of reclamation, scientific research has made it possible to transform a landscape almost lunar in its desolation, to a fertile plain, producing food in rich abundance.

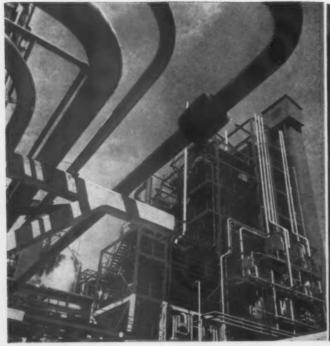
Many of us are inclined to associate scientific research with the laboratory. When we consider research, we envision a place of test-tubes, intricate apparatus and scientific paraphernalia incident to a clinical study. But there are fields of research requiring no other equipment than a normal inquisitiveness centered in the human brain.

There is no form of human activity that does not offer innumerable opportunities for betterment by research. Clearly outside any laboratory, its merit and measurable profit have been proved in the fields of purchasing, accounting, personnel, sales, standardization, and distribution.

It is a frontier of vast dimensions and includes not only the familiar types of work that have revolutionized our control and use of our material environment, but also occasional excursions into other farflung fields of human endeavor. Added to the exhilaration of finding out more about why specific things are, or why they act, or fail to act, there is an inestimable satisfaction in augmenting our general fund of knowledge.

Dr. Cohen's book will help to point the way toward acquiring a mental discipline and a method of organized fact-finding that will enable us to do our own stint of research in our own profession.

Unit 370 at the Whiting refinery processes crude petroleum directly to gasoline, kerosene, tractor fuel, furnace oil, fuel oil, gas, and coke, without redistillation on other equipment. Catalytic "cracker" at Whiting, fourth of these units in the consolidated companies' refineries, was put in operation in 1946. It makes larger quantities of higher quality gasoline from the crude petroleum.





Steel Markets in Transition

Course of steel production and prices in 1949 depends on many variable factors.

Substantial but more discriminating demand is seen in place of recent urgency.

Upward price trend may be reversed this year by increasingly competitive conditions.

 By E. L. Shaner,
 Editor-in-Chief, "Steel" Cleveland, Ohio

ORMALLY it should be possible for anybody who is fairly well informed as to what is going on in the steel industry to forecast quite accurately the volume of supply and demand and the trend of prices in the near future. Today it is almost impossible for a responsible person to hazard such a prediction for the simple reason that at this particular moment the fate of steel in the remaining months of 1949 depends upon an unprecedented number of variables, many of which are entirely new to the industry.

Therefore, instead of coming out flat-footed with positive assertions as to supply, demand and price, your speaker would like to discuss informally the influences that will affect these three important factors in the steel situation. From this discussion, we may be able to arrive at an agreement as to what is likely to happen in the coming months.

Production Capacity

First, it seems important to clear away the haze of misunderstanding that has hovered over the industry's ability to produce steel. In Washington and in some ivy-clad halls of learning it has been fashionable to criticize the steel industry for failing to increase capacity to the figures the theorists think are necessary. These critics have a habit of assuming that in the postwar sellers' market, capacity and production have been identical. What are the facts?

In 1946, production of steel ingots was 66,602,706 tons, or 72.5% of capacity. In 1947 output was 84,894,071 tons, or 93.0% of capacity. In 1948 production was 88,509,083 tons, or 93.9% of capacity. In the three postwar full calendar years the steel industry's actual output of raw steel fell 37,359,370 tons short of capacity.

Why? Because of strikes, not only in the steel industry proper but on railroads and in coal mines; and because of shortages in scrap, pig iron and labor; and because of the lower quality of coking coal, ore, and other ingedients.

Short Term Supply

Steel ingot capacity is important in the long-term economic picture, but in our discussion here today it is unimportant, because actual output in the remaining months of 1949 is bound to be less than 100% of capacity. Production, not capacity, is the short-term measure of supply.

Production in 1949 will be enhanced by a better supply of scrap and pig iron than has been available at any time since the end of the war. If demand calls for it and if no time is lost through strikes or shortages, steelmakers in 1949 can turn out 92 million or more tons of raw steel. Right now steel ingot output has been maintained for five consecutive weeks at an annual rate of about 95 million tons. Allowing for the normal conversion rate this would yield about 70 million tons of finished steel products-an unprecedented

Demand Is Inflated

Assuming for the sake of conservatism that a lower figure—say 67 or 68 million tons of finished steel—can be made available in 1949, a pertinent question is whether demand will measure up to this supply. The official forecast of the Department of Commerce is that in 1949 the supply of finished steel will be 68 million tons; that the domestic demand will be 70.8 million tons; the export demand 4.2 million tons; total demand 75 million tons; and the apparent deficit 7 million tons. Is this a re-



E. L. Shaner

alistic forecast?

Here we come to grips with the most elusive factor in the steel situation. Up until early November of last year steel demand exceeded supply by a wide margin. Since that time every day has witnessed evidence that the pipe lines of distribution are being filled and that one by one some of the steel consuming markets have reached the stage where the cumulative demand of the war and postwar years has been satisfied. This saturation has been pronounced in some of the

Address at the 18th Annual Midwinter Conference, Public Utility Buyers' Group, N.A.P.A., Chicago, February 7, 1949.

home appliance fields. Recently it has been apparent in the higher-than priced automobile market. Everywhere there is evidence that the market supported by people who had ready money for high-priced items has run its course. Henceforth the support will come from more discriminating buyers.

What do these portents in the consumer goods markets mean to the steel industry? Do they mean that the backlog of orders on steel mill books as late as November 1, 1948, were padded by duplicated and inflated orders to the extent that the orders for washing machines, higher-priced automobiles and some other items on dealers' books were inflated?

We are convinced that the backlogs on steel mill order books are subject to considerable contraction. At the same time we believe that the resultant level of real demand still is in a state of flux. Perhaps a few months may pass by before it will be possible to get an accurate gage of the new realistic steel market.

Allocated Tonnage

First call upon the supply of finished steel available goes to recipients under the voluntary allocation programs. As of today, about 500,000 tons monthly goes to these programs for freight cars, the armed forces, tankers, barges, oil field needs, atomic energy developments. National Advisory Committee for Aeronautics, mining machinery, and a few lesser consumers. Some of these programs, which were to have expired February 28, 1949, probably will be extended to Aug. 31, 1949.

It is entirely possible that the Department of Commerce, which administers these voluntary programs, may recommend priorities for steel for other purposes. For instance, a proposal to earmark 50,400 tons of steel for farm-type grain storage bins at the rate of about 8,400 tons per month is under consideration now. Also the tonnage allocated to the armed services and to other agencies concerned with national security could be increased or reduced according to conditions prevailing in the future. On the other hand, there is a possibility that the tonnage now allocated to freight cars, amounting to 250,000 tons per month, may prove to be ex-cessive. Taking all of these variables into consideration, it probably is safe to assume that additions will outweigh reductions in allocations—at least during the first half of the year.

At various times estimates have been made of the amount of steel American mills will be called upon to furnish for the European Recovery Program under the Economic Cooperation Administration. Some of these estimates have been excessive. At the present it looks as if exports of crude, semifinished and finished steel to ECA countries will not exceed 200,000 tons monthly. At the rate foreign steel producers have been increasing output recently, it is conceivable that the demand for American steel for ECA needs may be transferred in part to foreign mills. Meanwhile the exports of steel to non-ECA countries have been easing steadily and probably will continue to decline.

Cutbacks Cause Concern

As for domestic demand not covered by allocations, the outlook at this moment is confusing, due chiefly to the difficulty of diagnosing the current epidemic of cutbacks in industrial operations. Some of these are clear cases of adjustment, after pipe lines of distribution have been filled, to the yet-to-be-determined level of current demand. Some cutbacks are attributable in a large measure to seasonal conditions, to price resistance or to one or more of numerous other factors.

However, while these cutbacks are numerous enough to cause concern—at least until they are more satisfactorily explained, they should not be permitted to obscure the fact that there still remains a sizeable accumulated demand for steel that has not been satisfied and that the volume of demand for current needs is substantial. Considering all of these factors, demand should continue strong throughout the first half. Even if demand eases in the later part of the year, the total for the year should not be drastically below that of 1948.

Cost Is Key to Price

Obviously the key to steel prices is the cost of making steel. If the coming fourth round of wage negotiations results in a wage increase (which now seems unlikely) or in a grant of social security benefits, the cost in terms of cents per wage hour will go into the cost of making steel. Increased freight rates—already in effect and pending—are important elements in the price of steel. Also, changes in the prices

of material used in making or finishing steel will affect the price of finished steel.

At the present time, steelmaking scrap is about the only major item in the cost of making steel that is down sharply from previous price levels. Wages, transportation, taxes and most materials still are tending upward. While base prices are stable, the price the customer pays for steel products is undergoing change almost constantly, largely through the revision of extras. For instance, a recent increase in the cost of zinc currently is being reflected in changes in the coating extras for galvanized wire, sheets and other products.

Another problem which complicates the price outlook is the confusion over pricing methods. Most of the steel now is sold on a mill base. The shift from the multiple basing point system was effected in a sellers' market. Inasmuch as most buyers were eager to get steel at any price, the shock of the impact of this change was minor. In a true buyers' market, mill pricing—if continued—will introduce many new and difficult problems for many consumers.

At present, everything points to the likelihood of moderately higher prices for steel in the early part of the year. Somewhere along the line, the pressure of competition in those steel products in which supply has overtaken demand will begin to work against the upward trend, and in due time the trend will be reversed. This could happen before the end of 1949.

Summary

Summing up the major points brought out in this discussion, we may conclude that:

- (1) The steel industry can turn out 90 million or more tons of raw steel or 67 million or more tons of finished steel if demand warrants and if serious strikes or shortages do not intervene.
- (2) Demand can exceed, equal or fall short of this output, depending upon how successfully the nation can adjust from the market supported by urgent buyers with ready cash to a market supported by persons who must buy carefully, with discrimination as to values.
- (3) The trend of prices will continue upward spasmodically, but in diminishing degree, and then level off and decline as the competition of a buyers' market begins to make its influence felt.

Supply is Critical Factor in Copper Outlook

Inventories and production provide no margin of copper above immediate needs.

Government stockpiling and ECA programs take increasing tonnage from civilian use.

Facilities are ample, but deliveries must be geared to current intake of metal.

By Joseph W. Mullally

Manager, Utility Sales Anaconda Wire & Cable Co., New York



B EFORE looking at some of the factors which will affect copper in the year 1949, let us review the year 1948. Domestic copper fabricators—that is, wire and cable companies and brass mills—last year delivered fabricated copper materials such as sheet, rod, bar, wire and cable, which consumed 1,394,307 tons of refined copper. These copper, bronze and brass products were distributed to and used by the whole nation—utilities, railroads, rural cooperatives, industrials, electrical manufacturers, and many others.

Copper producers delivered to domestic fabricators 1,344,445 tons of refined copper in one shape or other during the year 1948. In 1947, this figure amounted to 1,383,-666 tons. Primary copper production, or new copper, amounted to 849,815 tons. In 1947 it was 871,-391 tons. Secondary copper derived from scrap amounted to 130,320 tons in 1948, and in 1947 it was 105,307 tons. Duty free imported copper, mostly from South American mines owned and operated by American businessmen, amounted to approximately 378,101 tons in 1948, as compared with 290,623 tons in 1947. Just 6,254 tons came from the Metals Reserve Corporation stocks.

Inventories of refined copper at United States refineries at the end of 1948 were 96,080 tons—a dangerously low level, but an improvement over 1947, when they were 76,035 tons. Consider the number of refineries. Consider the large number of different refinery shapes

needed by their customers. With less than 30 days inventory of all shapes, our refineries delivered an average of 112,000 tons per month. This industrial miracle by free enterprise kept American industry going.

Fabricators' inventories were reduced during the year by approximately 49,000 tons. They actually shipped more copper than they received.

Figures Are Misleading

Figures are dangerous unless read and interpreted properly. On January 13th, one of the leading newspapers of the United States carried a story under the caption, "Copper Price Drop Looms". And here is what it said:

"Industrial purchasing agents here reported yesterday that increased supplies and lower demand tor copper may bring about a price reduction within the next thirty days. They said that fears of further price increases have disappeared, and peak demand has been passed, with improved deliveries available from suppliers."

On that very day, the supply of copper was so limited that some buyers were willing to pay $24\frac{1}{2}$ ¢ a pound for January delivery, although the producers' price was $23\frac{1}{2}$ ¢. It is assumed that in talking about increased supplies, this newspaper had reference to the inventory of refined copper, of 96,080 tons, at the end of the year. This was a gain of 6,324 tons over the previous month. It was a gross fig-

ure. The stocks at the end of December owned by the refineries amounted to 84,258 tons, and at the end of November 84,726 tons—actually a small decrease in inventory. Refined copper stocks owned by consumers, at the refineries and not yet delivered, amounted to 6,644 tons at the end of the year, as compared with 206 tons at the end of November.

Supplies Are Short

The fact is that the copper producers are still unable to satisfy the demand for copper. The unfortunate strike at the Bingham (Utah) mine of the Kennecott Copper Company, which started on October 25th of last year, has resulted in a loss of roughly 5,000 tons per week. This loss of production was not reflected in the refined copper figures as of the end of the year.

However, crude production in the United States dropped from 68,808 tons in October to 46,539 tons in November and 49,435 tons in December. In other words, the smelters were not receiving their previous intake of ore. This will undoubtedly result in decreased supply of refined copper in the early months of 1949. After settlement of the strike, a period of approximately 90 days will be necessary before the renewed production of ore will be available to fabricators in the form of refined

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copper. From the above, I think you will agree with me that figures are

sometimes dangerous.

It is extremely difficult—in fact impossible—to correctly estimate the amount of refined copper that is going to be made available to domestic fabricators during the coming year, either from domestic production, reclaimed from scrap, or from imports. Certainly the domestic refined production is going to be reduced by an amount approximately equivalent to the amount of production lost due to strikes, either in the latter part of 1948 or that may occur in this year.

Secondary copper, from scrap, is not new copper; it is old copper being reused. The amount available from year to year varies considerably. For example, in 1945 it amounted to 49,541 tons; in 1946, to 32,503 tons; in 1947, to 105,307 tons; and in 1948, as previously stated, to 130,320 tons. Here we have rather a wide range.

It is hoped that imported copper from Latin America and Canada will continue to flow to our domestic economy in at least the same volume as for the past two years. To do this, it is necessary to further suspend the copper import duty. The 80th Congress suspended the 4-cent-a-pound duty until March 31st, 1949. Representative James T. Paterson of Connecticut on January 4th, 1949, introduced a bill providing for continued suspension of the import duty until March 31st, 1951.

If we assume, or guess, that we have no further strikes during the coming year, that domestic production, both primary and secondary, and imported copper all continue at the 1948 rate, then approximately 1,280,000 tons of refined copper should be available to fabricators and to the Federal stockpile in 1949. I have arbitrarily assumed a loss of approximately 64,000 tons due to the Kennecott strike.

There are two bright spots on the production horizon. The "Greater Butte Project", in about three years, will add close to 3,000 tons of copper per month to domestic copper production, and in five years, when the work is expected to be completed, a total of about 5,000 tons per month of new copper. The Anaconda Copper Mining Company is spending approximately 20 million dollars on this project.

In Chile, the Chile Exploration Company, a subsidiary of Anaconda Copper Mining Company, is going to spend 130 million dollars over a period of years for new plants and facilities. When these facilities are completed, this operation will have increased its copper output by about 20%, or about 45,000 tons per year.

Continued High Demand

In normal years-that is, other than wartime-there is a decided relationship between the demand for electric power and the demand for copper. During 1948, the United States consumed 1,344,445 tons of refined copper. The public utilities had a construction budget of approximately 1 billion dollars. In addition to the transmission and distribution work going on, they installed new generating capacity totaling 3,355,027 KW.

In 1949, according to the Edison Electric Institute, the privately owned electric companies have ordered and plan to install generating capacity totaling 5,366,700 KW, or approximately 62% more than in 1948. This new generating capacity will need many million pounds of condenser tubes, bus bars, wire and cable. This means greater copper demand. The electric industry can roughly be said to use about 50% of domestic copper consumption. This figure of 50% includes the requirements of privately owned utilities, REA, TVA, Bureau of Reclamation, and the whole of the electric equipment and electric appliance manufacturing industry.

The building industry and the automotive industry use about 25% of our copper. The civilian and military demand for motor vehicles should continue to keep the auto-

motive industry busy.

The Economic Cooperation Administration demand is gradually

increasing.

The Munitions Board of the National Military Establishment has contracted for approximately 90,-000 tons of refined copper for delivery between October, 1948, and June 30, 1949. Increased appropriations for stockpiling strategic metals have been requested. This might mean a further demand for copper.

All this indicates a very heavy demand for copper. No one can say exactly how much. If the assumptions are anywhere nearly correct, copper will be in short supply during 1949. But increased domestic production, greater output per man, greater imports, a decrease in stockpiling or a decrease in demand by the electric industry might alter the situation. A clear-cut prediction is not possible, but every indication points to a demand equal to or in excess of 1948.

On January 1, 1949, copper was selling at 231/2¢ per pound, an advance of only 2¢ per pound during 1948. During the same year, lead advanced from 15¢ to 21½¢ per pound, or about 43%. Zinc advanced from 101/2¢ to 171/2¢ per pound, or about 66%. The copper advance of approximately 9% is small in comparison. The copper advance last August was the result of wage increases plus increases in freight rates and other rising costs.

Price Advance Restrained

During the year, sales of copper by other than the leading producers and refiners were made at prices as high as 28¢ per pound. However, the market did not sky-rocket. The policy and the restraint exercised by the producers prevented a runaway market even though the demand was larger than the supply. Any further price changes in copper will largely reflect the relationship between supply and demand, and increased costs, particularly labor costs.

Supply, the Decisive Factor

The copper wire and cable industry is today in excellent shape. New facilities have been added since the end of the war. The big problem facing the wire and cable industry

today is copper.

Shortly after the beginning of the Federal stockpiling program, the monthly amount of copper made available to my company, the Ana-conda Wire and Cable Company, was decreased. We decided to limit our individual mill delivery promises to an amount equal to the expected monthly intake of copper. In other words, we are promising shipment now and in the future based upon the expected copper receipts rather than mill facilities.

The facts and factors affecting the copper market, as cited above, must be constantly watched and considered by the manufacturer of wire and cable, because they have a definite implication upon the successful operation of our business. They are gladly shared with you, our customers. The benefit of such information is that it helps and guides you in operating your business and in advising your management. I am sure that the Buyer-Seller team, working together, will gain its goal; it will get the materials needed to provide the electric power and light demanded by your customers, the American people.



Among those present at the Public Utility Buyers Conference: Paul Crary, Cincinnati; J. R. Carmichael, Atlanta; Horace L. Brewer, Jackson, Mich.; H. E. Wilson, Raleigh, N. C.

This Business of Purchasing

A N interesting and helpful parallel can be drawn between the purchasing function and the public utility industry. Both of them are based on the idea of service. Purchasing is essentially a service function, and public utilities are service industries.

The operation of a utility company differs from manufacturing industry in that it takes a lot of tangible things—generating equipment, distribution lines, fuel, and the like—and from them distills a product that is usually of an intangible nature, such as energy, light, heat, sound waves for communication, or, in the transportation utilities, that very intangible factor that the economists call the utility of location.

So far as your suppliers are concerned, you are buyers of tangible materials and products, the same as those who purchase for manufacturing plants. But to your customers, even though you pass your product through a meter or have other means of measuring it, you are the purveyors of a service. It is a very valuable and essential service; there is a tremendous and ever growing demand and market for it.

Why are your companies in the utility business? Is it primarily to make a profit? They are of course entitled to a profit, and, as in all

Why management maintains central purchasing departments, and what it expects of them.

The procurement officer's real contribution consists of intangibles, not materials.

Service is the purchasing agent's principal stock in trade.

By Stuart F. Heinritz

business, it is necessary to make a profit to remain in business. But when you realize the real purpose and character of the utility industry, it appears that the profit is incidental; it is a result, rather than a cause, of your activity; it is a privilege granted, under the enterprise system, in return for efficiency of management and operation.

In the utility industry, profit can never be the primary motive, because the public interest is the first consideration. That entails some responsibilities that may even be in conflict with a strict concern for profits. Your companies may be called upon to extend their service, or to maintain certain parts of that

service, when such action would not be economically justified by ordinary profit standards. In the public interest, your rates and profits are strictly regulated. That, by the way, is a growing trend throughout the industrial economy, wherever the public or national interest is involved in a product. In a service industry, the service is the motivating and determining factor.

We can trace this back still farther. Even before you come to the stage of making service available through your distribution systems,

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your business has been projected into a realm that is still less tangible. Your industries are conceived in terms of such factors as convenience, comfort, easing the task of labor in the factory and home, or on the farm-in short, the nation's standard of living. When we evaluate the economic state of any nation, we are rarely content to measure only the per capita wealth and material resources; it is common practice to note the number of telephones, the miles of railroad, the extent of electrical service and power mechanization that exist.

American utilities have made a remarkable record in this respect; they have played a major part in placing and maintaining our national standard of living in the front rank of the entire world. Still, the demand for service seems to be truly insatiable. This is your great opportunity, and along with it, your basic responsibility. For the public interest is definitely and inseparably a part of your business. That is evidenced in the very title of this group—you are *Public* Utility Buyers. And the plain truth of the matter is that if you fail to meet this responsibility, if you do not provide service far enough and fast enough and economically enough, in the public interest, that function will pass into the public domain.

This is not the time or place to debate the economics, the equity, or the competitive status of municipal power plants, the REA and TVA. the proposed Columbia Valley Authority or the even more controversial Missouri Valley Authority. Besides, if we did so, we would probably all be on the same side. However, to be realistic, we must face this situation. There is a basic service to be performed. If it is not done by functional industry. then top management in government will find another way, and all the influence of the utility industry will be powerless to stop it. This is mentioned here because it is all a part of the parallel with the service function of purchasing, within any given organization, whether in the utility or manufacturing field.

Let us look at our individual purchasing jobs in this light. Why are you in purchasing? Is it primarily just a job, for the sake of the salary? Of course most of us have to work at a job, and the worker is entitled to his salary. But that's not why the purchasing office exists in a company, and it is fairly safe to say that most buyers do not get their major satisfaction from the

pay check. If that were the main objective, they would probably seek some more lucrative field.

The group objectives of Purchasing Agents Associations-which reflect the fundamental objectives of their individual members-are to learn to do a better purchasing job and thus give better service, to earn a higher measure of prestige for the purchasing function, and to establish purchasing in its proper position in the industrial organization. There is a natural sequence in these aims. That sequence goes on to the natural expectation that the rewards of purchasing will be increased as the service and position are improved. This should follow not only for the individual buyer, but, on a broader scale, for all who are in the purchasing field, regardless of Association affiliation. Every purchasing man is the beneficiary of these higher standards.

Why does the purchasing office exist? It deals with tangible materials. The program of this conference, the presence and participation of your suppliers, are evidence of vour keen interest in pole line hardware, equipment, copper, steel, fuel, lumber, and the like. As purchasing officers, you spend your companies' money for these things. They might be procured in other ways. The reason why that money is expended through the medium of a purchasing department is because management believes vou can do a better job, as purchasing specialists, than if every engineer, station manager, line foreman, or construction superintendent were to do his own buying. It's up to you to make good on that belief.

Your company has a purchasing budget, for materials. It also has a purchasing department budget, covering your job. What does it get in return? Service. Put the two budgets together, and the company gets the tangible materials it needs, plus certain intangibles such as:

Maximum value for expenditures; Continuity and security of supply;

Maintenance of quality; Intelligent scheduling; Smooth operation; Economically low inventories;

Sound inventory values; Good vendor relations;

Safeguarding of the profit opportunities that are inherent in that part of company expense represented by purchased items.

These intangibles constitute the service that justifies a modern purchasing organization in any and

every type of industry. This is the service for which purchasing departments and purchasing jobs exist.

Management has frequently gone on record as to what it expects of the purchasing department. That expectation—your responsibility—is not expressed in terms of fuel, pipe, equipment, and line hardware, but in terms of better coordination and cooperation with stores departments, with engineering, with operating personnel, with suppliers—in terms of service.

To carry out the parallel with the functions of a public utility, these services constitute what might be termed the management utility of purchasing. To carry out the parallel still farther, if the service isn't good enough, if it falls short of what management expects, then management will find some other way of procuring the materials it needs, and all the influence of the Association would be powerless to prevent it. The purchasing department has no divine right to buying authority. It earns that authority by virtue of the superior service it gives. The position of purchasing is exactly what purchasing men and purchasing performance make it.

I am not suggesting that any such change is imminent, that it should or will take place, for I believe that a competent centralized purchasing department, with the full backing of management, is the most effective means of procurement, just as I believe that public utility operation as private enterprise is-or can be-the most effective way of providing these essential public services. Both of these statements must be qualified. however, by the condition that the objective of service is kept vividly in the forefront of our thinking and is translated into action. The purchasing program and the utility program are both worked out in tangible details of materials and equipment, but their objectives and accomplishments lies in the intangibles of service.

Our job, then, is to extend the horizons of that service, and to make it a constructive force in the company's operation. It is sometimes hard to remember this when confronted with the everyday problems of getting pipe or insulators, wondering what's going to happen in the copper market, or whether the generator you are buying today might cost 5% or 10% less a year from now. Yet that's the difference

(Please turn to page 308)

The Purchasing Agent as Administrator

As a department head, the Purchasing Agent's chief responsibilities are administrative.

Different basic qualifications are needed in the buyer and the executive.

Are we neglecting the most important part of our job in our professional thinking?

By J. Donald Hogg
 Purchasing Agent
 Cleveland Electric Illuminating Co.
 Cleveland, Ohio

T IS rare in a Purchasing Agent's meeting, or in publications devoted to purchasing, that subjects relating to other than the functions of the Purchasing Department are discussed. We talk about buying, market conditions, what the future may hold, forms and so on. These do, of course, in part relate to administrative problems. However, the Purchasing Agent and his particular administrative problems have been missed down through the years.

There are few department heads in utilities who perform as large a part of the actual functions of their department as do the Purchasing Agents. The head of your Engineering Department does very little, if any, actual engineering. The heads of your Accounting groups do practically no accounting. However, no Purchasing Agent—no matter how large his group—can ever avoid performing some of the buying, expediting, or other functions of his department.

We are all convinced that the Purchasing Agent is an administrator. But is he? In an effort to get some conclusion on this point, I conducted a small poll which I hope is more accurate than some recent polls which you remember. This survey covers only seven Purchasing Agents, but these are as representative as I could make them, covering the large, the moderate and the smaller sized utilities. My purpose was to determine how much of a Purchasing Agent's time is functional and how much administrative.

Of course, a substantial amount of the time he spends overlaps these two. Let's take a look at the results. All polls, of course, require some arbitrary interpretation by the pollster. In order to come to some reasonable conclusion, I placed one half of the time the Purchasing Agent spends interviewing salesmen and visiting his own and vendors' properties in each of the two categories-functional and administrative-so that overall, 39% of the time of this group of Purchasing Agents, on that basis, was functional and 61% of his time administra-

It is interesting to note that, omitting interviewing salesmen and visits to properties, one Purchasing Agent spends only 11% of his time functionally and, at the other extreme, another Purchasing Agent spends 60% of his time functionally. It is a fair conclusion that the former heads a large Purchasing Department and the latter a small one. However, even in the latter case, 40% of his time is administrative. So that whether the department is large or small, a very substantial portion of his time is spent administering the function.

It takes no stretch of imagination to remove interviewing salesmen and the tours of the properties from the functional time. This would leave only 23% of the Purchasing Agent's time actually performing a part of the work of his department and 77%—more than three quarters—spent administering the work. Whichever set of figures you choose,



you are inescapably forced to the conclusion that the head of the department spends the bulk of his time on administrative phases.

Now, who makes up the Purchasing Agents Associations? The majority of the members are heads of the department or their chief assistants. Bearing in mind that very little is said or written about the administrative phase, which is the bulk of his work, I think it is a fair conclusion that the Purchasing Agent himself is the "Forgotten Man" in the Purchasing Agents Association, and this is really an anomaly.

My conclusion from this is that more of the time of the Purchasing Agents' Groups should be spent discussing the administrative phases of the Purchasing Agent's work and this, of course, is a conclusion that you have perhaps suspected right

At every turn we find someone referring to the Purchasing Agent as an "Executive" and at almost every meeting someone refers to the "Profession". Are we whistling in the dark? I think so. But we have no reason to whistle. However, as long as we do, others will tend to accept us at our own evaluation of ourselves, and this applies to top management of our own companies as well as the vendors with whom we deal. So long as we feel that it is necessary to emphasize that we are executives, other people will

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PERCENTAGE TIME DISTRIBUTION PUBLIC UTILITY PURCHASING AGENTS

	A	В	C	D	E	F	G
FUNCTIONAL TIME					000/	e 0/	10%
1. Buying	1%	10%	5%	27.5%	20%	5%	1070
2. Expediting	4	5	15	2.5	10	5	2
* 3. Interviewing Salesmen	5	4	7.5	12.5	7.5	12.5	5
4. Office Routine (Mail, etc)	5	10	5	30	5	10	10
5. Tours, Vendors' and Own							
Properties	2.5	7.5	5	*****	-	2.5	2.5
6. Other					15		access .

TOTAL (AVERAGE) FUNCTIONAL TIME - 39%

ADMINISTRATIVE TIME

F-4-1-1								
7.	Personnel, Other Department Problems, and Planning	30	15	10	2.5	10	20	10
8.	Company Committee and Management Meetings	20	6	5	5	10	25	15
9.	Meetings with Own Department People	10	20	10	2.5	No.	(a)	10
10.	Meetings with Other Department People	5	2	5	2.5	10	(b)	2
*11.	Interviewing Salesmen	5	4	7.5	12.5	7.5	12.5	5
*12.	Tours, Vendors' and							
13.	Own Properties Other	2.5	7.5	5 20	(c) 2.5		2.5	2.5

TOTAL (AVERAGE) ADMINISTRATIVE TIME - 61%

* Time spent in interviewing salesmen and visiting vendors' and own properties has been arbitrarily divided equally as functional and administrative. If these activities are considered as being entirely administrative, total average functional time is only 23%, and administrative time is 77%.

(a) Included in 7.

(b) Included in 8.

(c) On own time.

suspect that perhaps we are not. You will probably remember how many speakers before our groups, who are from outside our occupation, hasten to get in our good graces as early as possible in their talks, by referring to us as "Purchasing Executives". Their attitude is frequently rather smug and they appear to feel that they have patted us on the back. Perhaps this problem is emphasized by the makeup of our meetings to which I have already alluded.

The word "Agent" in the title so many of us have, really means nothing. Even from the legal view, the title has no real significance where one man heading a department is known as "Agent", and many of his assistants are actually making the commitments, which in all likelihood he knows nothing or little about. Should we not make an effort to change the title to something more indicative of our stature?

We are all very conscious of the need for Purchasing education but we usually think in terms of educating buyers or trainees. We have many excellent programs designed to assist in the training of buyers. What we need is expansion of our educational facilities to cover the administrative problems.

If that is a fair conclusion, what should such a program cover? In order to get some basis for our thinking, let's first take a look at several phases of the Purchasing Agent's responsibilities. Let me emphasize that I refer to his responsibilities, not to the functional work he does.

Administering the Function

The first phase would be his administration of the functions of his department. These vary widely between purchasing departments. So, I will discuss only those which are commonly a part of Purchasing Department's duties. Of the functions he administers, the first and, of course, the fundamental function is buying. In this phase, the Purchasing Agent is responsible for directing the people who are making the commitments, which frequently total millions of dollars every month.

Here the administrative phase is particularly important, since directing the buying group along the proper channels of thinking, policy and practice can account for savings of many thousands of dollars.

Utilities these days are particularly conscious of the necessity for saving costs, and it is in the matter of original price paid versus longterm cost of using the material and equipment where responsible administrative direction can frequently save the most dollars in the long run. The greatest number of dollars expended for Utility purchases, outside of fuel, are capital items and are intended to remain in service a great many years. Any unfortunate expenditure, in connection with those purchases and of construction labor, remains a part of the company's cost and capital structure for decades. It is not passed along to the customers immediately, as is the case in the consumer goods field or, for that matter, in the industries serving utilities.

One principal administrative problem in buying is to insure that the buyers do not treat their buying as purely a routine. We must insure that the buyer's imagination and initiative is on the job while every purchase is made. Buyers need to be willing to exhibit their lack of knowledge, provided they will use the necessary imagination and initiative to take advantage of somebody else's knowledge and, at the same time, increase their own. It is the administrator's job to insure this.

Here is an example of what I mean. A buyer with but a general knowledge of castings and metals received a requisition to buy some gray iron castings in the form of fins for placement over tubes, which unit then was to be used as a heat exchanger. Not being an expert and not being ashamed of the fact, he raised the question as to whether or not some other casting would give greater heat transfer and, therefore, efficiency. Working with his Company's engineers, he determined that a different iron casting was not the answer nor was the use of a high heat conducting metal such as aluminum. A groping for information led to an approach to a number of steel fabricators and finally a solution was reached which was a steel sheet spiral welded on the tube. This cut the purchase price of that one replacement lot by over 50%. When all such tubes in his system are converted, as they will be, there will be a saving of many thousand tons of fuel annually due to the increased efficiency of heat transfer.

Another administrative responsibility is the laying down of the policy in connection with escalator clauses.

Another problem is the matter of "price rings", or price fixing by a group of suppliers, which is certainly not aired nor, for that matter, can some phases ethically be discussed in Purchasing groups. However, general matters relating to this problem can be discussed profitably by both buyers and sellers in open forum.

Legal problems are, by their very nature, difficult to handle and regretably most references made to this subject are highly technical case histories applying to litigations between relatively small organizations or between those who do not expect to continue to do business together. Actually a utility Purchasing Agent's principal legal problem is to direct the avoidance of legal problems, and some know-how on this subject would be valuable to us.

Consistent Policies

The proper delegation of authority to others in the department is one of the marks of a good executive. This is nothing new, as it has been preached for decades, but it is very difficult of attainment and poses a real challenge to Purchasing Agents, particularly because of the necessity for him to perform at least some of the functions of his department. There is an unfortunate tendency to do more of this than is necessary, thus cutting down on the time that he should be spending planning and directing the carrying out of his plans.

All of our departments buy items costing anywhere from a few pennies a dozen to upward of a million dollars an item and this tends to create artificial differences in buying policy with respect to those items. Consistency of policy for all items we buy is a real necessity. Half of the administrative battle is won if your policies are consistent and your people know what your policies are. It is difficult for me to appraise whether a single policy is easier to administer than a number of overlapping policies. However, with a consistent policy some problems are accentuated, particularly those of exceptions to policies and, of course, a good executive does not prohibit exceptions. One mark of a good executive is his proper handling of exceptions.

Expediting and delaying shipments, particularly the latter, requires fine administrative direction. As you are all undoubtedly experiencing now, this delaying function is probably as important as the expediting work and by its very nature requires better administration or planning. First, of course, we have to ascertain whether or not it will pay to delay or, for that matter, to expedite. If we do not need the material or equipment as early as originally scheduled, what should we do-defer, cancel and substitute some other item so that the vendor will not lose business from a commitment that you have already given him, or is it best to just delay delivery until sometime in the future? In any event, the problem at the present time is to have someone recognize, ferret out, and plan for the delays which can save your Company money and time and storage space. How about cancelling orders at your request through no fault of the vendor? Do you have a definite policy? Is it what your people practice?

Invoice approval in times of rapidly fluctuating prices with accompanying mixtures of escalator clauses, firm prices, etc., requires particular judgment where payments are in dispute between the buyer and seller and a continual watch for necessary changes in policy is essential. A problem that has still not left us is, what to do about billing from the vendor who was originally the lowest bidder but who has the highest price on the shipping date. What policy do you have? Do you people know what the policy is and are you insuring that it is carried out?

Most Purchasing Departments are Sales Departments for scrap and other materials. In many utilities the annual sales are close to the annual sales of many fair sized vendors. Is the overall selling policy of the Purchasing Department the same or consistent with the overall policy of your own sales department? Again, do you have one policy when you buy and another when you sell?

Defining Responsibility

Those are a few of the highlights of the administration of the functions of a Purchasing Department.

Administration of other than the functions of the department is a second phase of a Purchasing Agent's administrative responsibility and was also the second phase of the questionnaire.

Probably the most significant item in the questionnaire was "What do you consider the principal problems of the administrator of the purchasing function in a public utility?" The three most frequent answers were as follows:

- 1. Coordination of Purchasing with other departments.
- 2. Selecting and training staff.
- 3. Vendor relations.

Four of the seven Purchasing Agents contacted stated that their responsibilities and authority were not clearly defined either to themselves or to other departments in their company. Here is a real administrative problem. Actually the 'why" of this situation is the crux of the matter. The "why" might vary all the way from the one extreme of top management's failure to define authority and responsibility of any of the departments of the company, through to the other extreme of top management's reluctance to give authority to Purchasing, either because they wish to retain the same for themselves or because they lack confidence in the Purchasing Department. Again, every one seems to think that he knows how to buy and that the Purchasing Department is a rubberstamp operation. The problem, of course, is to determine the "why" and then to do something about it. That is easier said than done. But, suppose we as Purchasing Agents sponsored an educational program on this problem, even if we do nothing more than find out how others have licked it, we can make a valuable contribution to ourselves and our companies.

A related but not the same problem is that of keeping management sold on the importance of the purchasing function. The war and postwar conditions certainly helped but we need to hold the ground we have gained and gain more. One effective tool is suggested in Stuart Heinritz' fine book "Purchasing", on page six, and that tool is nothing more or less than a way to demonstrate to top management the effect of savings that an efficient Purchasing Department accomplishes. He states, "a saving of 10 or 15% in Purchasing, is a profit equivalent to double sales volume". Of course, he is speaking specifically, I think, of Purchasing for processing and resale, but the principle applies to utilities as well. He goes on to say further that the actual profits or savings in Purchasing are written

(Please turn to page 300)



Economy Through Standardization

Standardization has made possible mass production and checked rising costs.

Standards act as a wholesome brake on rugged individualism in design.

But standards must not be permitted to stand in the way of dynamic progress.

By W. C. Johnson

Executive Vice President Allis-Chalmers Mfg. Co. Milwaukee, Wis.

WEBSTER'S dictionary tells us that *economize* means: "to manage with economy, or to the best advantage; to be sparing in expenditures; to be frugal."

Likewise, standardization is defined as: "to render standard"; and standard: "that which is established by authority, custom, or general consent as a model."

While the most common understanding of economize involves the idea of being frugal, the broader definition—"to manage to the best advantage"—should guide the decisions of all of us connected with the electric power industry.

The defining of *standard* as "that which is established" seems to indicate a degree of permanence of the model by "authority, custom, or general consent." Thus it must be understood that we are compromising the terms and selecting the shaded meaning of these definitions that best suits our purpose.

In our system of free trade by and between buyer and seller, we have a system of regulation which operates to bring to the market new ideas and new products which are the driving force toward ever higher levels of performance and lower cost, which together provide this country with the world's highest standard of living.

Address at the 18th Annual Midwinter Conference, Public Utility Buyers' Group, N.A.P.A., Chicago, February 8, 1949.

Thus we contradict our definition insofar as the establishment may indicate permanence of our model, because the prosperity of our nation is geared to the restiveness of its people and their desires for ever more and more of good and better living. In fact, any concerted action that operates as an upper limit could probably be interpreted as restraint of trade under the provisions of the Sherman Act; therefore, we must regard our standards as only minimuma, and they must be as dynamic as the people they are designed to serve.

Standardization can work completely in some things, only partially in some, and not at all in others. and what may be subject to complete standardization in one geographical location might be uneconomical in another. For example, you may completely standardize insulators or transmission towers for a whole power system and live for years without change. You many standardize the screw thread of a light bulb and socket without permanently fixing the value or the quality of light it delivers except as to the acceptable minimum. With some degree of success, steam turbine generator units have been given a beneficial treatment, but you cannot stand-ardize hydraulic turbines, and any effort in that direction would be wasteful.

The tremendous expansion program undertaken by our industry is probably the greatest effort ever initiated by any industry for peaceful purposes. Our shops, like those of other suppliers, are busy on your orders, some of which will not be filled until 1951. It is expected that generating capacity additions up to 1952 will average in excess of 5,000,000 KW per year, and a high order of standardization is necessary to the successful conclusion of such an effort.

Generating capacity, per se, is only one phase of the overall program. The transformers, high and low voltage switchgear, transmission and distribution apparatus for this increase in load are of no small consideration; and since facilities must be loaded to become useful, there are literally millions of units of industrial, commercial and domestic devices ranging from light bulbs to electric furnaces which must be manufactured, sold, and put to work. Therefore, we all have much to do in these years ahead and we must all make maximum use of standards if there is to be production enough for such a program.

I feel sure that this expansion would not have been physically possible had not our engineers and yours been willing to sacrifice some of their prerogatives and pride of individual signature on a specifica-

AVERAGE PRICE ADVANCE, 1939-1949 ELECTRICAL EQUIPMENT

	, -
Vertical water wheel generators	59
Large motors	521/2
Large steam turbine gererator units	60
Power house switchgear	36
Power transformers	60
Distribution transformers	45
Single phase step regulators	29
Three phase step regulators	37

AVERAGE PRICE ADVANCE, 1939-1949 OTHER INDICES

	70
Cost of living (Source: BLS)	75
Average weekly earnings in electric power industry (Source: EEI)	65
Industrial raw material (Cource: BLS)	179
Domestic farm products (Source: BLS)	212
Food (Source: BLS)	122
Clothing (Source: BLS)	101
House Furnishings (Source: BLS)	98
Finished steel composite—1941-Jan. 1, 1949 (Source: BLS)	68
Copper, electrolytic, Connecticut Valley 1941-Jan. 1, 1949 (Source: Business Week)	95

tion to purchase. Nor would there be enough talent available to write or interpret individually engineered specifications for even the major items in some of the projects. Over a long period of years, your engineers and ours have deliberated and developed minimums which have come to be a language between us, such as A.S.T.M. standards, S.A.E. standards, N.E.M.A. standards, A.S.M.E. and A.I.E.E. standards. Many of these designations appear as simple code letters but convey the understanding of a lifetime of effort.

An outstanding example of the amount of effort required to arrive at basically sound standards is illustrated by the long deliberations resulting in the A.S.M.E.-A.I.E.E. Preferred Standards for steam turbine generating units. The best brains in the utility industry, the consulting field, and the manufacturing field, examined every phase of the proposed standards with a result that in the final form they represented a compromise most beneficial to all. These standards have served their purpose well by making possible the manufacture of more kilowatts of new generating capacity at a lower price than would have been possible had there been no standards. This is mentioned only as an example because it has been a major project of the recent past. The history of the electrical industry is filled with projects of varying size and importance.

Not only has standardization made it physically possible to carry out such a tremendous expansion program but I think a comparison of the price advances of electrical machinery and other commodities will indicate a large measure of benefit. Some representative figures showing the increase in average prices, in the period of 1939 to January 1949 are given in the accompanying table. From the figures it would appear that prices of the electrical equipment you have to purchase are somewhat lower than the levels attained by other widely used commodities. true in spite of this electrical equipment being in short supply for the past three years. I believe we can draw the conclusion that the standardization programs on this equipment have been partially instrumental in keeping the prices down. I believe we can also conclude that such standardization programs have not been artificially advanced to a point where the engineering and tooling costs incurred by the manufacturers were excessive. Thus the mutual benefits of lower manufacturing costs have not been dissipated.

One more comparison will help to evaluate the present price levels of the electrical equipment you pur-

chase. The most highly standardized item in the American economy is the automobile. It is also the result of mass production of the highest order. Yet we find that between the period of 1939 and July 1948 the retail list prices at the factory, excluding the extras. have increased more than electrical equipment. These price advances for automobiles are as follows:

Chrysler Windsor	 70%
Ford DeLuxe	
Oldsmobile	 76%
Buick Series 40	 69%
Packard 8	 79%

The present price levels of the kind of electrical equipment you buy indicate that the utilities have fared rather well. The Bureau of Labor Statistics reports an increase of 75% in average hourly earnings in the Electrical Machinery Industry for the period October 1941 through September 1948. For the same period they report a 67% increase in wholesale prices for metals and metal products-the material we use to make the equipment we sell you. In spite of the level of these costs to us, the electrical machinery you buy from us will average about 50% higher in price than in 1939.

Can we economize through standardization? The obvious answer is "yes" because we have already done just that. The relative price levels of electrical machinery are ample proof.

The subjugation of individualism to the compelling need for expansion in your industry is of no mean significance because rugged individualism seems to have been the priceless ingredient in the very development of the industry to its present high place in our economy. However, when the compelling necessity of this expansion abates, will your engineers be ready to accept the standard of the moment? This is a question in which we as manufacturers are more than mildly interested.

From my experience, I believe engineers will tend to revert to specification of their own ideas, and purchasing agents will need to exercise a larger measure of control to protect the gains which have been made. However, in the exercise of this control, purchasing agents must keep in mind the necessity for moving standards and act only as a brake to keep the progress moving at an orderly pace.

As an example, the steam turbine-generator standards which are

(Please turn to page 306)

Steel Distribution Trends

Senate Committee investigates distribution changes and effects on small business.

Competition and balanced supply may solve problem of independent customer.

Areas close to producing centers receiving greatest share of higher steel output.

WHILE balance of supply and demand in iron and steel is anticipated some time this year, it is of considerable interest to note the results of a Senate committee study into the changes in distribution of steel from 1940 to 1947.

The changes are primarily the outgrowth of the shortages of iron and steel during the postwar reconversion period. They are, however, also traceable to two other factors: namely, that in addition to increases in the cost of producing steel, there have been significant increases in the various services incident to delivery, as well as in actual transportation costs.

In view of the latter developments, the question is raised concerning the basing point system of absorbing freight costs. Important trends have appeared which might make steel producers less anxious to serve remote points, and the Senate Committee which made the study (Special Committee to Study Problems of American Small Business) assumes that these changes were most oppressive to so-called small business.

Among the factors discussed by the Senate committee was the possibility that steel companies, through mergers and acquisitions, have extended themselves into the production of a wide variety of fabricated goods, and have been shipping to their own fabricating subsidiaries steel which otherwise would go to independent business.

Steel company spokesmen differed on this point. Representatives of some companies indicated that they have been shipping a larger percentage of their production to subsidiary operations, while others pointed out that they have maintained a completely detached attitude as between independent customers

and subsidiary consumers in their shipments of steel,

Over and above the fact that some legislators are disposed to infer malignancy to any industry trend, the policy of steel companies on such a matter would appear to be made on the basis of future business. The policy of supplying steel as between subsidiary consumers and independents would be a decision of the producer based on retaining the business of the independent once supplies become plentiful. This would not present a problem in the case of a subsidiary.

Similar inferences were made that steel producers shipped a larger proportion of their output to their own warehouses, to the disadvantage of independent warehouses. Again the same competitive factors apply.

Statements were also made before the Senate committee that the steel companies greatly increased their production of the more expensive types of steel such as cold-rolled products, and that since all coldrolled products are produced from hot-rolled steel, the effect was to work an additional price hardship on some consumers.

Finally, the committee was told that steel companies have been withdrawing from areas distant from the centers of steel production and have been shipping more and more of their steel to nearby customers. This was traced primarily to the operation of the basing point system.

Obviously, the question of policy in supplying subsidiary as against independent, will be reduced to unimportance in a period when steel supplies again become adequate. The pattern of industry is so complex that individual charges by fabricators that they had been discriminated against in favor of a steel company are largely a matter for intercompany relationships, rather than of national policy.

In a period of adequate supply, the question of finishing of steel products also is reduced to unimportance, as prices become competitive and consumers are able to designate the forms in which they will purchase.

The major question involved is whether the trend toward localizing markets in the so-called optimum trading area of the producing company is merely a reconversion phenomenon, or whether the trend will carry over into postwar supplier-consumer relationships.

Only concrete answer has been in the reports from steel producing centers that manufacturers fabricating significant tonnages of steel have tended to locate plants closer to steel producing centers. This is only a fragmentary indication, and comes from reports of local chambers of commerce.

It is a matter for future decision as to whether the steel producers will maintain their recently adopted policy of mill net prices, and in so doing will, in effect, encourage buyers to purchase from producers situated to their best advantage in terms of transportation costs—or whether the steel producers will have to scramble for business to an extent that they will offer freight absorption inducements to remotely located consumers.

Major thesis expressed in the report of the Senate Small Business Committee was that geographically the 12 areas which happened to be the major centers of steel production received nearly half as much again as their prewar shipments of hot-rolled steel sheets during the reconversion period — while the amount shipped to the entire remainder of the country rose only 2.7%.

Where We Stand

PRODUCTION

Today's Business Trends As Reported In Current Statistics

YEAR AGO

124,291

MONTH

% OF CHANGE IN MONTH YEAR

+1.8

_ 3.9

- 8.9 +12.0

- 3.1

---19.1

1.0

+ 7.0

+ 4.9

--21.6

+ 9.4

- 3.1 + 5.7

170 16C JAN. FEB. MAR.	BASE	LATEST	MONTH	YEAR AGO
Industrial Production Index	1935-39==100	191	191	193
Steel Production (Weekly)	000 net tons	1,880	1,845	1,757
Electric Power Production	mil KWH	5,552	5,778	5,293
Bituminous Coal Production	000 net tons	10,330	11,350	13,179
Auto, Truck & Bus Output	units	112,504	100,445	102,841
Petroleum Output	000 bbls	5,187	5,351	5,353
Engineering Construction	000 \$	131 342	162 404	124.291

	PR	ICES	
200 190 180			
160 150			
140	JAN.	FEB.	MAR.

All Commodities (Bur. Labor Statistic	:s) 1926=100	159.0	156.9	161.0	+ 1.3	- 1.2
Farm Products	1926=100	171.6	162.5	187.1	+ 5.6	- 8.3
Metal & Metal Products	1926==100	177.8	178.3	155.6	- 0.3	+14.3
Building Materials	1926=100	201.3	200.4	193.1	+ 0.4	+ 4.2
Steel Billets, Pittsburgh g	ross ton	\$58.24	\$58.24	\$50.00	-	+16.4
Steel Scrap, heavy melting, Pitts.	ton	36.75	38.75	40.25	5.1	- 8.6
Copper (Electrolytic)	lb.	.23 1/2	.23 1/2	.21 1/2	******	+ 9.3
Cotton, mid., 15/16"	lb.	.3337	.3356	.3487	- 0.5	- 4.5
Rubber, (Rib-smoked sheets)	lb.	.19 1/8	.181/4	.20	+ 4.7	- 4.4
Wheat (No. 2)	bu.	2.50 3/4	2.52 1/4	2.62 3/4	- 0.6	4.5

1	IK. Dept. S	ADE	les)
500 450 400			
350 300 250	1		
200	JAN.	FEB.	MAR

Dept.	Store	Sales	Index	(Fed	l. Res)
Comn	nercial	Failur	es (Du	in &	Bradstreet
Freigh	nt Carl	loading	gs		

1935-39==100	243	231	266	+ 5.2	- 8.6
no.	185	145	113	+27.5	+63.7
cars	705,552	682,143	792,571	+ 3.4	-10.9

FINANCE

The state of the s						
Stock Prices (Standard & Poor's)	1926=100	118.1	115.7	111.3	+ 2.0	+ 6.1
Bank Clearings (New York) -	mil \$	6,242	6,538	6,982	- 4.5	-10.6
Federal Reserve Credit	mil \$	22,003	22,836	21,326	- 3.6	+ 3.1
Currency In Circulation	mil \$	27,577	27,557	28,006		- 1.5

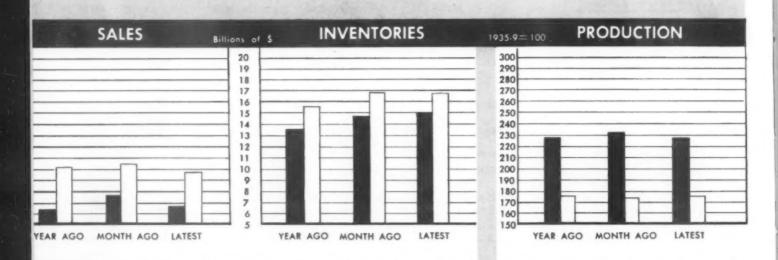
MANUFACTURERS' SALES, INVENTORIES AND NEW ORDERS

Indexes of Value of Manufacturers' Sales		1948					1949
(Average Month 1939 = 100)	Jan.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
tal Manufacturing	311	341	370	354	353	342	325*
Durable Goods	329	368	404	398	400	395	3854
Iron, steel & prod	325	362	389	393	386	387	
Nonferrous metals & prod	364	421	487	456	489	461	
Electrical machinery & equip	386	414	505	472	496	507	
Machinery, except electrical	304	347	381	359	354	366	
Automobiles & equipment	383	437	474	503	510	486	
Transportation equip. except autos	446	503	528	540	561	600	
Furniture and finished lumber prods	270	259	290	270	258	254	
Stone, clay and glass products	223	289	298	302	288	270	
Other durable goods	276	282	295	268	263	243	
iondurable goods	301	325	350	328	322	311	296
Food and kindred products	313	315	359	322	310	304	
Leather and products	301	342	369	344	340	300	
Paper and allied products	303	309	325	283	270	268	
Chemicals and ailied products	320	342	355	348	349	314	
Petroleum and coal products	320	331	355	322	309	286	
Rubber products	328	341	345	345	351	373	
Other nondurable goods	282 296	341	348	344	330 349	349 305	
al Manufacturing	265 279	283 291	285 296	287 297	290 302	296 306	299 310
Iron, steel & prods	202	227	232	236	241	243	
Nonferrous metals & prods	249	276	283	287	283	298	
Nonferrous metals & prods	249 372	276 396	283 402	287 401	283 402	298 401	
Nenferrous metals & prods. Electrical machinery and equipment. Machinery, except electrical.	249 372 291	276 396 298	283 402 302	287 401 303	283 402 306	298 401 313	
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Source — Department of Commerce, Revised Series

N. A. - NOT AVAILABLE *ESTIMATED

SALES, INVENTORIES AND INDUSTRIAL PRODUCTION



DURABLE GOODS

NON-DURABLE GOODS

Straws in the Trade Wind

■ Republic Steel Corporation, Cleveland, O., has purchased a stock interest in the Liberia Mining Company Ltd. which has a concession containing hematite and magnetite about 45 miles northeast of Monrovia, capital of Liberia. The ore assays 68% in iron and has low phosphorous,



sulphur and silica content. The average analysis of Lake Superior deposits is about 51% iron.

- A group of United States oil men, formed by Edwin W. Pauley, has signed a drilling contract with Petroleos Mexicanos, Mexican government agency. Participation by foreign firms in drilling for Mexican oil wells had been prohibited since Mexico expropriated foreign oil properties in 1938. The new contract has been described as opening "the way to far-reaching progress in hemisphere security and self-sufficiency."
- Performance of the rubber industry in production and price stability calls for the following rubber policy, according to P. W. Litchfield, chairman of the board, The Goodyear Tire & Rubber Company: Keep 600,000 tons of general purpose synthetic rubber plant capacity in standby condition, ready for any emergency. Keep at least 150,000 tons of this capacity in constant production, not only because it is required by market conditions, but also because it will enable an evergrowing fund of production know-how for the nation.
- The Netherlands has become one of the major European oil producers. Output increased from 41,000 barrels in 1945 to 1,478,000 barrels in 1947, and to an estimated 2,800,000 barrels in 1948, according to the Foreign Commerce Weekly of the Department of Commerce.
- More than 700 scientists and experts from at least 50 countries are expected to attend a conference at Lake Success, N. Y. in August, to compare findings and theories on preserving the world's natural resources. The meeting will be known as the U.N. Scientific Conference on the Conservation and Utilization of Resources.
- In a joint statement, The American Petroleum Institute and American Gas Association revealed that proved reserves of crude oil and natural gas liquids in the United States increased more than 2,000,000,000 barrels in 1948, despite record production. Reserves of natural gas were increased almost 8,000,000,000,000,000 cubic feet.
- Exports from the United States in January dropped 15.5% to \$1,085,100,000, from the record high reached in December, 1948, according to the Census

Bureau. Imports declined to \$589,300,000 for the month, 18.3% less than the peak reached in December.

- Building Notes: Rodney M. Lockwood, president of the National Association of Home Builders, predicts in the group's current newsletter that there will be a steady rise in the cost of houses over the next decade, unless there is a severe depression . . . The quarterly letter of the United Savings & Loan League, Chicago, foresees for the months ahead a continuation of a high rate of home construction, helped by slowly declining building costs and higher labor productivity . . . Theodore E. Mueller, president of American Radiator & Standard Sanitary Corp., reported to stockholders that he expects a slight drop in building activity in 1949.
- Potash has been discovered on an oil-drilling site near North Battleford, in northwestern Saskatchewan, Canada, according to the Office of International Trade. Other deposits of potash were previously discovered at the Unity oil field in the same province.
- January sales at retail stores amounted to \$9.5 billion the Commerce Department has reported. On a daily average basis they were 1% above January of last year, but with one less trading day than in 1948, the total was 2% less than a year ago. Chain store and mail-order sales for January are estimated at \$1,985,000,000. With one less trading day than in 1948, daily average sales this year were slightly above the previous January.
- The electric companies of the country are successfully coping with their generating capacity problems,

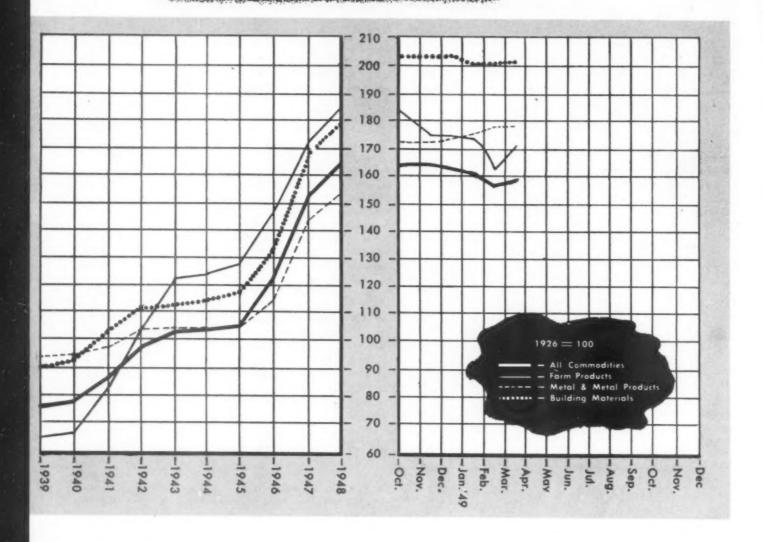
according to Ernest R. Acker, president of the Edison Electric Institute. He announced that on the basis of final calculations, the industry's reserve margin of generating capacity during the December 1948 peak period averaged 6%, on the basis of total installed capacity, as against



the 1947 reserve of 5%. He estimated that a margin of reserve capacity of 10% will be reached by the end of 1949.

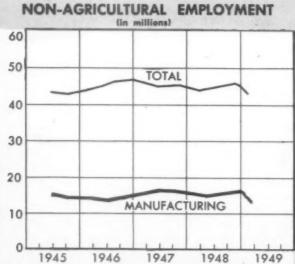
The 11-month dispute between the nation's rail-roads and their 16 non-operating unions was settled on March 20. Among the terms of the agreement is the granting of a 5-day, 40-hour week at the same pay heretofore received for 48 hours. The terms were the same as those recommended by a fact-finding board in December, terms which the Class I railroads involved in the dispute said would cost them an added \$640,000,000 per year.

The Price Picture

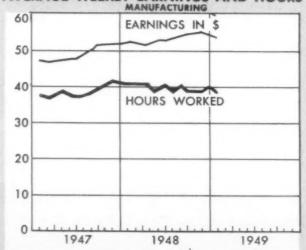


Employment & Earnings





AVERAGE WEEKLY EARNINGS AND HOURS



SOURCE: U.S. DEPT. OF LABOR

"QUOTES"

"The effect upon the economy of an alternation between the furious rate of (government) spending that would be required at one time to curb depression tendencies, and the confiscatory rate of taxation that would be required at another to eliminate the inflation resulting from the previous spending cure, can be likened only to life on the moon."

Dr. Harley L. Lutz
 Tax consultant to NAM

"The only way we can keep what we have now is by making sure that other nations can sell to us, so they can get the money to buy what we have. If it means a sacrifice here and there along the line, we are going to have to make it, because . . . we can't live in heaven while the rest of the world is living in hell."

 The late Sol Bloom
 U. S. Representative from New York

"It seems plain that the (President's) economic advisers are as much out of touch with the facts of life as were the economists who in the fall of 1945 predicted that conversion to peacetime production would produce 8,000,000 unemployed. The evidence is abundant that the boom has leveled off, that a state of rough balance between inflationary and deflationary influences has been established, with deflationary influences (for the time being, at least) slightly stronger than the inflationary."

— Sumner H. Slichter

Professor of Economics
Harvard University

"The Government has come to a Gulliver's estate, with threads spun around it until it has been rendered almost helpless. This is probably the last chance we have to free it from its bonds. Everyone and every department affected by our proposed program (reorganization of the Government) vigorously applaud reforms in every branch except their own."

- Herbert Hoover

"There is no royal road to our learning how to live together, how to work together and how each may be sure he is conscientiously doing his part and fairly getting his share in return. Certainly, the right road is not in the direction of force but of education, both economic and moral."

 L. S. Boulware, Vice President of Employe Relations, General Electric

"Can we afford not to analyze the life-cycle of trends that have led to Fascism, Communism and Socialism? Can we afford not to analyze how the peoples of certain other nations have been deluded by glorious pictures of a future that proved to be a tragic mirage? Is not such-fact finding the only reliable method of discovering where, in fact, we stand?"

John L. Collyer, President
 B. F. Goodrich Co.

"The free nations of Europe are winning the 'cold war' for economic recovery and . . . the collateral benefits flowing from success are of more importance . . . It may well be that the measures of co-operation will form the foundation for a far grander structure, the permanent close association of the free nations."

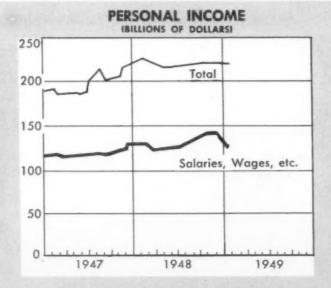
Paul G. Hoffman
 ECA Administrator

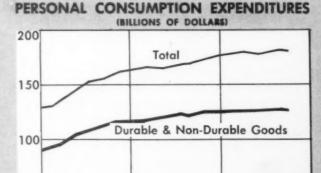
Personal Income & Expenditures

ANNUAL RATES

50

1946





1947

1948

Materials & Markets

STEEL



With nine straight weeks of operations at 100% of capacity or better as this was written, the steel industry continues to put forth record production. On a yearly basis, the current output would result in a total of 98,000,000 tons of raw steel for 1949, almost 10,000,000 tons larger

than the tonnage made last year. It is this high level of production, combined with a declining demand for several major items which leads the industry to see an early balance where normal requirements can be met in a normal way — without extreme pressure for deliveries, or recourse to the gray market. It supplies also, in the opinion of trade leaders, an effective answer to the talk of the necessity for government to step in to increase steelmaking capacity. In an interview with United States News and World Report, Benjamin F. Fairless, president of United States Steel Corporation said "the supply is rising and the demand is slackening . . . Unless unforeseen demands emanating from the European Recovery Program or the rearmament program appear, the supply of most steel products should be in excess of demand sometime during the last half of the current year."

Although most companies have ample stocks of coal, and it appeared at this writing that the stoppage called by John L. Lewis would end on March 28, as scheduled, the situation points up how dependent steel is on other factors that could easily nullify the production records now being set. Another stoppage later in the year, or a strike, would cut into any surplus coal stocks the steel companies have and force them to begin cutting back to conserve supplies. Also typical of the incidents that could upset schedules and change the improving delivery picture was the threatened strike of conductors, brakemen and switchtenders of the Union Railroad in the Pittsburgh area. The railroad is a vital carrier of raw materials and finished products.

Speculation on steel prices has increased, of course, as the supply outlook brightens. Scrap prices, historically a guide to the price of finished products, have continued to slide as supplies were being reduced at some steel plants. But no important price reductions other than those by some small producers, designed to bring their prices into line with those of the bigger firms, have appeared yet. It appears unlikely that they will, either, despite reported pressure from both large and small consumers, until the industry has a clear picture of what labor's demands will be, and just how

permanent the current drop in demand will be. A strong upturn in business this spring can tighten the market considerably.

Two interesting items revealed in March: the domestic allocation program for steel was cut as much as 137,000 tons a month; a government spokesman said that the Department of Commerce probably would shortly re-examine its steel export control policy, with a view to relaxing it he said, "premium prices on steel are vanishing, Belgium steel is providing competition in many markets, and European exchange juggling has enabled foreign sellers to knock down their prices to United States levels."

NON-FERROUS METALS

The non-ferrous metals market has definitely begun to ease, as production increases and demand falls off. Rather abruptly, despite growing indications that increased foreign supply and declining demand from storage battery makers were going to have some effect on the domestic market, the price of lead dropped a total of 31/2 cents a pound within the space of two weeks, marking the first break in major non-ferrous metals since OPA restrictions were lifted in 1946. The effect of such reductions will be widely felt in a variety of products. One of the first reactions to be noted was the 15% price reduction on all automobile batteries by a leading mail order house. Some trade sources have expressed the belief that lead prices may go up again this summer when the weather causes battery deterioration and large replacement sales. Legislation to continue suspension of the lead tariff, which is due to expire on June 30, is now pending in Congress. Should the tariff remain suspended, imported lead can be expected to continue offering competition to the domestic product.

The big question in the non-ferrous market at this writing is copper, which appears to be showing signs of weakness. Scrap prices were cut twice this month, bringing No. 1 heavy copper wire scrap to 17 cents a pound, and No. 2 to 16 cents a pound, following large offerings of secondary metal. The price of refined



copper has remained steady at 23½ cents a pound, although predictions have been made that a price reduction will be made by the summer. Factors pulling against such a reduction are the tremendous demand for copper, particularly from the electrical industry, and the requirements of

the government's stockpiling program, which, however, are difficult to measure. Consumption and delivery



figures will be watched very carefully during the next two or three months, especially since the effects of resumption of operations at the strike-bound Kennecott mine in Utah will be felt more fully at that time. Domestic refined stocks of copper at the end of February were 83,841 net

tons. This represents an increase of $19\frac{1}{2}$ % over the same period in 1948. Deliveries to customers for February were down 7.7% from last year. Prices on insulated copper wire and cable were recently lowered from 5 to 12% by leading producers.

Aluminum continues in heavy demand and comparatively short supply, despite the primary aluminum production in the United States in January of 106,713,329 pounds, about 2,000,000 pounds above the average monthly output during the fourth quarter of 1948. Developments in the lead situation, of course, are being watched carefully as a barometer of general conditions by aluminum producers, but no similar break appears to be imminent in the white metal market.

Shipments of aluminum sheet, plate and strip by member companies of the Aluminum Association during January aggregated 88,701,266 pounds, 5,000,000 pounds under the December figure, and 16,000,000 below the 1948 monthly average.

Connecticut brass mills are operating on a four-day week, reflecting an estimated drop of 40% in business from last year . . . Order backlogs of zinc smelters at the beginning of March were 87,898 net tons, the largest since April 1942 . . . Platinum prices have fallen to the lowest level since March, 1948, \$72 an ounce in small lots, and \$75 in wholesale quantities. This is the fifth cut in price since the first of the year . . . Ralph L. Wilcox, chief of the nonferrous metals division of the ECA stated recently that global demand for such metals as aluminum and lead will continue heavy, and greater efforts must be made to increase smelter and mine production of the metals to avert long-range shortages. . . . Allocation Order M-81 has been amended by the Department of Commerce to eliminate special quota restrictions on the amount of tinplate which can be used in the manufacture of beer and animal-food cans. The order, however, still provides that "during the first 6 months of 1949, in making cans, no person shall use more than 50% of the tin in the form of tinplate coating than was contained in the tinplate he received during 1947 for making cans."

CHEMICALS

Ethyl alcohol prices appear to have ended the rapid decline of the past few months, and if no price rise is anticipated immediately, it is felt at least that the current price of 21 cents a gallon is just about as low as producers can go, and still operate at a profit. The price of butyl alcohol, both fermentation and synthetically produced was lowered 2½ cents a pound at mid-month, caused probably by slowed-up demand and accumulated stocks.

Despite an increasing supply and lowered demand, methanol prices were remaining firm, with no price drop expected in the near future.

FUELS

A few days after an expected break in soft coal prices on March 9, when Pittsburgh Consolidation Coal Company, one of the world's largest producers, reduced prices 15 to 40 cents a ton in the northern West Virginia, John L. Lewis called for a two-week "memorial stoppage", supposedly in protest against the appointment of Dr. James Boyd as head of the Federal Bureau of Mines. It is difficult to prove any specific connection between the two moves, but Mr. Lewis' warning to the union convention in October that competition and cutting of prices would again menace the coal industry, has been offered as a clue that more than a protest against an appointment was involved in the stoppage. Some view it as a "stabilization" move that will reduce heavy stocks and help the "share the work" principle on which Lewis likes to base his operations.

Market price cuts of 25 to 32 cents a barrel for Pennsylvania crude oil, and another slash in crude

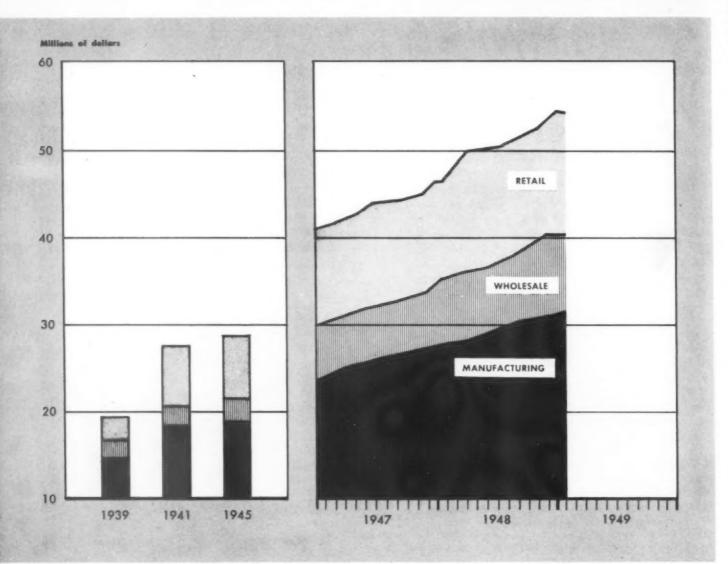


oil, and another slash in crude oil production for April ordered by the State Railroad Commission of Texas this month further emphasized the current oversupply, and the desire of producers to bring supply and demand into a more balanced position. The Pennsylvania company announcing the reduction said, in part,

"In order to market crude oil in the areas where demand is now current it has become essential to have the delivered prices of the various grades competitive, since a buyer's market prevails for crude oil in addition to the general buyer's market for refined products."

The sixth cut in prices of home-heating fuels for the New York area was made just before this was written, reflecting the excessive stocks that have been built up because of reduced demand during an unusually mild winter.

BUSINESS INVENTORIES



(Millions of dollars)

	TOTAL	Manufa	cturing	Whol	esale	Re	tail
Period	(Data as end	(Data as end	of period)	(Monthly	Average)	(Monthly	ave(age)
	of period)	Durable	Non-durable	Durable	Non-durable	Durable	Non-durable
939	19,902	5,172	6,344	954	2,078	1,773	3,582
940		6,127	6,746	1,052	2,224	1,982	3,736
941		8,352	8,672	1,204	2,590	2,439	4,413
942		10,073	9,148	1,153	2,913	2,756	5,516
943	30,346	10,729	9,168	903	2,633	2,041	5,238
944		9,907	9,215	941	2,778	1,863	5,622
945	29,189	8,337	9,587	1,011	2,749	1,860	5,716
946		11,130	12,302	1,392	3,405	2,484	6,754
947	47,987	13,331	14,685	2,232	4,685	3,392	8,102
							Total
948: January	49,130	13,456	15,045	2,594	5,256	1	2,779
February	50,278	13,525	15,243	2,664	5,221	1	3,625
March	51,213	13,566	15,498	2,751	5,118	1	4,280
April		13,692	15,469	2,803	4,974	1	4,164
May		13,780	15,657	2,810	4,991	1	3,992
June		13,849	15,878	2,848	5,105	1	3,637
July		13,967	16,269	2,836	5,094	1	3,498
August	. 52,501	14,032	16,397	2,818	5,282	1	3,972
September	. 53,648	14,252	16,458	2,853	5,390	,	14,695
October	. 54,514	14,334	16,514	2,881	5,510	1	5,284
November	. 55,378	14,580	16,645	2,957	5,544	1	5,652
December	54,001	14,774	17,022	2,980	5,306	1	3,919
1949: January	. 54,184	31,998	(total)	8,543	(total)		3,643

1—Except 1939 and 1940 figures, which are monthly averages Source—Office of Business Economics, U. S. Department of Commerce

Public Utility Purchasing Agents in Conference at Chicago

WITH a registered attendance of 370 members and guests, the 18th Annual Midwinter Conference of the Public Utility Buyers Group, National Association of Purchasing Agents, was held at the Edgewater Beach Hotel, Chicago, February 7th and 8th. Group Chairman George H. Cole, Purchasing Agent of the Alabama Power Company, Birmingham, and his associates had arranged a comprehensive and timely program, with four business sessions devoted respectively to Fundamentals, Commodities, Economics, and Education. On the lighter side, an informal cocktail hour on Monday was followed by dinner, entertainment and dancing in the Marine Room.

Chairman Cole opened the conference on Monday morning, turning the session over to Russell C. Wenz of the Philadelphia Company, Pittsburgh, as presiding officer. Wallace B. Burnet, President of the Chicago Purchasing Agents Association, welcomed the delegates to the city, extending also an invitation to return for the N.A.P.A. convention, which is to be held in Chicago in June. Lyall C. Stilp, District Vice President of N.A.P.A., spoke briefly, introducing National President Ralph O. Keefer of Pittsburgh, who addressed the meeting on the topic "Our Professional Obligations".

Professional Obligations

Mr. Keefer stressed the fact that the larger responsibilities of purchasing men go beyond their functional duties as procurement officers for their respective companies. One of these responsibilities lies in the field of public service, for sound administration of public affairs. A recent example of such interest and constructive aid is the effective participation of several prominent purchasing executives in the studies and recommendations of the Hoover Commission on reorganization of the executive branch of government, in that section of the project

Highly successful midwinter meeting surveys present conditions and future trends.

Two-day program covers fundamentals, markets, economics, and education.

Utility industry reports technical progress and expansion to meet power requirements.



A. G. Pearson of Chicago, who represented Past President George Aljian; Wallace Burnet, President of the Chicago Association; National President Ralph Keefer; and District Vice President Lyall Stilp.

aiming for greater efficiency and economy in federal purchasing.

A second obligation of purchasing is to contribute to planning ahead, which is a responsibility of all management. The present drain upon our resources by Economic Cooperation program to aid the devastated countries of Europe has complicated purchasing problems. This program is using up materials that are already in short supply for our domestic needs, and forward planning of a high order is necessary to keep our own industrial economy on an even keel.

A third obligation is to be artic-

ulate in respect to the free enterprise system of which we are a part. We must stop apologizing for profits, which are the mainspring of our prosperity and progress. Mr. Keefer pointed out that profits must logically be higher in a period of inflation, for business "costs of living" have advanced proportionally with personal living costs. Normal reserves, measured in lower purchasing power of the dollar, are not sufficient to meet the replacement costs of equipment at today's prices. Depreciation is a legitimate cost factor, and the picture of apparent profits is distorted



Tomlinson Fort, of Westinghouse
"We are trying to give you better
values"



Chet Ogden, of Detroit Edison Pinch hitting for an engineer



Edward Falck, of Washington
"In NSRB we have the nucleus for a
new WPB, OPA, WMC, and ESB"

by accounting policies and regulations keyed to an entirely different set of values. These facts must be made clear and expressed with conviction to combat the propaganda of the more articulate enemies of free enterprise.

Free Enterprise Defined

To sum up the elements of free enterprise in vivid and easily remembered form, President Keefer paraphrased a definition from the Association of National Advertisers, and put the essential factors into an acrostic. The five elements that would put a "crimp" into totalitarian schemes for the overthrow of our system, he said, are:

Competition

Regulation (held to a minimum consistent with necessary control)

Incentives (for both capital and labor)

Markets that are free Private Property

These factors should always be kept in the forefront of our thinking, planning, policy and action. "The maintenance of free enterprise and free markets is a necessity to our profession," Mr. Keefer declared, "because we cannot function as true purchasing agents if we are told what to buy, when to buy, and how much to pay for it."

An Operating Viewpoint

The next paper presented was a discussion of "What an Operating Man Expects of the Purchasing Department". This paper was prepared by S. M. Dean, Chief Engineer of The Detroit Edison Company, and was read in his absence by Chester F. Ogden, Purchasing Agent of that company.

Mr. Dean declared that operating men have learned that much is to be gained through close cooperation with their purchasing departments, not only in the operating and maintenance phases of the business, but in planning, engineering and construction phases as well. They are expecting — and receiving — more and more of this constructive cooperation.

Engineering decisions and programs are largely influenced by the counsel of well informed purchasing men as to what materials can be obtained, how soon, and at what cost. He cited an example of a recent study looking to the use of a steel pipeline type of conduit in place of previously used types. While this study was still in the experimental stage and engineers were not yet ready to state actual requirements, the purchasing department, which had been cooperating in the compilation of relative costs, warned that the situation in steel pipe was such that the project would not be possible unless orders for the material were placed at once. After intensive consultation, the orders were placed, well in advance

of the completion of engineering work, and in advance of any specific requirement that would have been turned over to purchasing for procurement under normal procedure. As a result, the project was carried through, to the great benefit of the company and improvement in operating practice, whereas it would have been necessary to abandon it or defer it indefinitely without this foresight and cooperation on the part of purchasing.

Another valuable sort of purchasing cooperation exists in making use of the wide range of knowledge and experience of vendor companies. Vendors' technical departments are very close to the problems of equipment and material requirements. They have developed ideas and methods for meeting these problems, and have a broad picture of prevailing practice and results that could be acquired by the customer, if at all, only through intensive travel and investigation. Yet this knowledge and experience are made available through the purchasing department.

Many instances could be cited where power projects and other developments that a company was planning to its own design, have been modified to incorporate improvements and cost saving features suggested by vendors through their purchasing department contacts.

Investigations Solve Problems

In some cases vendors and using companies have jointly undertaken long range investigations to solve long range problems, sharing the costs of these studies, which frequently amount to a considerable figure. One such project concerned the design and construction of a new type cable. Savings on the first order placed on the new specification covered the company's entire share of the cost for experimental work, and these savings were cumulative, multiplying with each successive requirement and order. Needless to say, such a joint project could be possible only in an atmosphere of complete confidence and cooperation, resulting from a long experience of fair dealing. Sound, ethical purchasing policies and practices pay dividends.

Purchasing has contributed substantially to the direction, progress, and practical application of engineering standardization, and implements operating efficiency through a consideration of ultimate costs. A requirement is no longer weighed only in the light of procuring something that will do the job, but in terms of the material or equipment that will result in lowest cost of operation.

Service Aspects of Purchasing

The concluding address at the morning session was "This Business of Purchasing," by Stuart F. Heinritz, Editor of Purchasing. He drew a parallel between the service functions of the public utility industry and of the purchasing department, stressing the intangible factors and values that constitute the greatest accomplishment in each. This paper is presented in detail elsewhere in this issue.

Commodity Markets

The Monday afternoon session was devoted to market conditions and outlook in major fields affecting public utility requirements. H. E. Wilson, Purchasing Agent of the Carolina Power & Light Company, Raleigh, N. C., presided at this meeting.

Pole line materials were first considered, in a comprehensive paper and discussion period led by T. H. Schaffer and M. M. Kenneally of the Joslyn Mfg. & Supply Company. In summary, their conclusions were as follows:

Southern yellow pine will continue to supply nearly 75% of all wood poles in 1949, and is in abundant supply except for the longer sizes, which are scarce and must be accumulated over a period of time at treating plants. For Western red cedar, it is necessary to go higher and higher into the mountains, farther from transportation, building more roads and encountering a progressively shorter season for getting them out. (In the Idaho area, there were 160 days in 1946 when poles could be hauled from the woods, but only 92 days in 1947 and 99 in 1948). All this tends to keep down production and increase unit costs. The domestic situation shows little prospect of improving, but the lifting of Canadian export requirements on January 10th may increase available supply by as much as 20%. Douglas fir is the second most widely used wood for transmission poles; demand, in the shorter sizes, is falling off east of the Rockies, for competitive rea-

Base prices on yellow pine have not increased since 1946; on other species they are definitely higher.

Freight costs, which represent about 30% of delivered prices, have increased substantially.

Dwindling supply of clear fir has made it necessary to accept either clear or structural grade in crossarms, in whatever ratio the tree developed. A revised specification takes this situation into account, defining permissible defects and allowing some further leeway in that superior density may compensate for slightly larger knot sizes. Deliveries are on a prewar basis, compared with an 18-month backlog two years ago.

Steel anchors are in good supply, with about 15 manufacturers now in this field as compared with only 4 in 1946, and new designs which produce more units per ton of steel.

Prices are up 17% to 30% depending on design.

Insulators and hardware are rapidly approaching normal supply and deliveries are promised "as required" for construction in 1949. The distribution transformer situation has greatly improved, with deliveries from stock up to 10 KVA, and 4 to 8 weeks on larger sizes. Demand continues active.

In general, pole line hardware is being produced and delivered at the same rate as a year ago. Backlog of orders was reduced by one-third in the fourth quarter of 1948. Shipping schedules should be improved in 1949. The only serious material shortages today are in pipe for brackets and street lighting and zinc for galvanizing. The average

LEAD TIMES ARE SHORTER ON ELECTRICAL EQUIPMENT OF STANDARD DESIGN

(as reported by T. Fort of Westinghouse Electric Corporation at Public Utility Purchasing Agents' conference)

	1947	1949
TURBINE GENERATORS		
11,500 Kw and below	20-24 months	11-13 months
Above 11,500 Kw	33-36 months	30-33 months
POWER TRANSFORMERS		
Up to 10,000 KVA	15-20 months	10-12 months
10,000 to 12,500 KVA	19-22 months	12-18 months
Above 12,500 KVA	21-26 months	21-26 months
MOTORS		
Up to 200 HP	12-15 months	From stock or
Above 200 HP	15-20 months	up to 6 months
7.00-10	10-20 monns	• • • • • • • • • • • • • • • • • • • •
SWITCHGEAR AND PROTECTIVE EQUIPMENT		
Large Oil Circuit Breakers	18-28 months	6-16 months
Metal Clad Switchgear	24 months	7-12 months
Network Protectors	15 months	3½ months
Distribution Lightning Arrestors	4-6 months	From stock
DISTRIBUTION TRANSFORMERS		
50 KVA and below	10-24 months	From stock or up to 1 month
75 to 500 KVA	17-20 months	From stock or up to 6 months
WATTHOUR METERS, RELAYS AND INSTRUMENTS		
Single-phase Watthour Meters	15 months	From stock or up to 1 month
Relays (except carrier)	4-5 months	From stock or up to 4 months
Indicating Instruments	2-4 months	From stock or up to 21/2 months
EQUIPMENT FOR STREET LIGHTING		
Luminaires, Reflectors, Cable	3-6 months	From stock or
		up to 2 months
POLES		
Steel and Concrete	6 months	71/2 months
Aluminum	**********	20 weeks



J. J. Huether, of General Electric "Time and experience are more necessary than new orders"



George Renard, of N.A.P.A.
"The Chicago Tribune might be wrong"



Art Pearson, on Education
"If you're not a top-side purchasing
officer, the chances are that you're
off-side"

cost of hardware per mile of construction is 26% to 30% higher than under OPA prices.

Lead Times Are Shortening

Tomlinson Fort, Manager of Central Station Sales, Westinghouse Electric Corporation, in a paper entitled "Looking Ahead in the Electrical Equipment Field", re-

ported a notable improvement in delivery time on virtually all types of electrical equipment of standard design, as shown in the accompanying table. He also stated that manufacturers have improved service by an extension of strategically located warehouse facilities and the rebuilding and training of skilled sales engineering staffs since the war. Their sincere efforts to give better value are indicated, he said, by the fact that price increases in 1948 represented only about half the increases in labor and material costs during this period.

He asked the cooperation of purchasing agents in accurate scheduling of their requirements, particularly on large apparatus. An increasing number of buyers are asking for delayed shipments. The advance procurement of component parts, scheduling of manufacturing operations, and allocation of factory and storage space, makes this exceedingly difficult for the producer after equipment has reached the manufacturing stage. Changes in construction schedules and requests for delayed shipments of heavy equipment should be made six to twelve months ahead of delivery date, he urged.

"I would like to conclude my remarks with a note of optimism," said Mr. Fort. "It is our firm conviction that for many years to come, the use of electric power will steadily increase. We are in many ways shifting back to a normal basis of doing business. However, this shift is being made to a plateau far higher than we ever operated on before. I think it is up to all of us to have confidence to go ahead and carry through our plans. I believe it is a waste of time to sit around waiting for prices to go back to prewar levels. The lowest prices we ever had in the electrical equipment business were in 1933. During that year there was little increase in the demand for power. You spent then only 164 million dollars in expanding your systems, whereas last year you spent two billion dollars. 1933, that year of extremely low prices, was probably also the year that we reached an all-time high in pessimism. tainly none of us would exchange 1949 for 1933."

Copper and Steel

Joseph W. Mullally, of Anaconda Wire and Cable Company, and E. L. Shaner, Chief Editor of *Steel*, discussed the situation and outlook in copper and steel respectively. Mr.

Mullally predicted a demand for copper in 1949, for consumption and stockpiling, equal to the tonnage of 1948, without runaway prices. Mr. Shaner foresees an adjustment in the demand for steel, with more discriminating buying policies. Prices will trend moderately upward in the first part of the year, followed by a reversal of this trend, possibly before the end of 1949. Both of these papers are reported in detail in this issue.

Power and National Defense

H. N. Ramsey, Purchasing Agent of the Philadelphia Electric Company, presided at the Tuesday morning session, which was devoted to economic factors. He introduced as the first speaker, Edward Falck, Chief Consultant on Power and Utilities, National Security Resources Board, Washington. Mr. Falck's topic was "The National Defense Aspects of the Electric Power Program."

Mr. Falck stated that the objective of the N.S.R.B. is to do enough advance planning to make possible the quick creation and effective operation of a War Production Board type of organization in the event of another emergency without the twoyear delay and development period experienced in World War II. The present staff is small—about 400 people altogether. The Board has no power beyond advising and making recommendations to the President. The section dealing with power problems has recruited personnel representing all phases of the industry-equipment manufacturers, privately owned utilities, TVA, Bonneville, Rural Electrification Administration, and the Federal Power Commission.

Power Problems

In respect to power facilities, there is now very little slack. The total power load cannot be increased very fast, but there is hope that it will be adequate for national security needs by the end of 1951, as increasing margins are provided.

Surveys have been made to determine whether allocations are necessary to provide the equipment for this expansion. The industry as a whole does not want scheduling or allocation of raw materials, and expects to attain its goal without such controls. The natural gas industry did want allocation, but this has not been recommended.

Surveys have also been made to provide an inventory of supply and requirements in the nation's principal industries, including supply and requirements of strategic materials and skilled manpower. The latter factor has an important bearing on any system of selective service that may become necessary.

Thus the N.S.R.B. is in effect a nucleus for a complete wartime organization—War Production Board, Office of Price Administration, War Manpower Commission, and Economic Stabilization Board.

Standards and Progress

"Can We Economize through Standardization?" was answered emphatically in the affirmative by William C. Johnson of Allis-Chalmers Manufacturing Company. He qualified his statement, however, by pointing out that standards of design must never be permitted to become static, since even the most advanced engineering design tends immediately toward obsolescence as new needs arise and new horizons are opened. Standards may constitute a wholesome brake on the extravagances of rugged individualism, but they should not restrain initiative nor block progress. The complete text of Mr. Johnson's stimulating discussion is presented in this issue.

Accomplishments of Research

J. J. Huether, Manager of Central Station Divisions, General Electric Company, discussed recent accomplishments and direction of research on electric utility equipment. One important development in this field is the combustion gas turbine. Its ability to come up to

full load in just a few minutes makes it particularly valuable as stand-by equipment. Its compact size also makes it useful as a portable unit, for use on carriers or brought to locations as an emergency source of power.

At the present time, six such units are being built. Three of these will use natural gas and three Bunker C fuel oil. Experiments are under way on the use of powdered coal for fuel in this type of turbine. Despite notable progress and evident advantages already seen, it is felt that time and experience are more necessary at this stage than additional orders. Mr. Huether characterized the attitude of the research engineers on this project as "restrained enthusiasm".

Research on steam turbine generators is in the direction of operation at higher speeds and higher temperatures, which could reduce costs by 15%. These results depend at least in part upon the development of materials capable of standing up under the more severe operating conditions.

The application of atomic energy to power generation is being studied, and it is expected that two or three small installations will be completed within a couple of years. Its use on any significant scale is probably twenty years away. Atomic power development for commercial purposes is regarded as a process of evolution rather than revolution, to supplement rather than supplant present sources of power. The greatest economies and advantages will probably be realized where fuel is scarce and transportation costs are high.

George A. Renard, Executive Secretary of N.A.P.A., brought the morning session to a close on a high note of interest and enthusiasm with his keen analysis of the current business and economic situation, presented under the familiar title, "From One P. A. to Another" He urged a realistic appraisal of political and economic trends. The cycle of prosperity and depression is still in operation. This doesn't necessarily mean "boon" and bust". Rather, it is like the cycle of night and day, with intermediate periods of twilight and dawn. It is in these twilight periods of transition that purchasing judgment and performance are of greatest moment to industry.

Turn of the Cycle

There are many evidences that we are now in such a period of transition. Vendors are "waiving the cover charge for accepting an order," and through a process of rotational adjustment we are attaining a better balance of values.

There are many "monkey traps" in such a situation for the unwarv or avaricious business man. One is to overstay the market or to try to wring the last drop of advantage from a depressed market. Another is in applying one overall policy to all materials, regardless of individual conditions. A third lies in inventory accounting methods that use the misleading measures of dollar value or unit volume without regard for current rates of usage and turnover. Wise national policy and industrial management can bring us through the present hazards to a stable prosperity that will clearly

Bob Shillady (Boston), George Cole (Birmingham), Don Hogg (Cleveland), and Bob Dowling (New Orleans). Mark Covell (St. Louis), Bob Stephens (Tulsa), Chet Ogden (Detroit), and Steve Kennedy (Springfield).





establish the free enterprise system as the one sound and successful way to maximum living standards and opportunity.

Educational Objectives

The final conference session was devoted to the topic of education. Charles F. Wilson of the Lone Star Gas Company, Dallas, was the pre-

siding officer.

First on the afternoon's program was a message from George W. Aljian of San Francisco, Chairman of the N.A.P.A. Committee on Education, read in his absence by Arthur G. Pearson of Chicago, a member of that Committee. Mr. Aljian's thesis was that beyond the functional responsibility of procurement to get maximum value for his company, management expects the purchasing officer to be of such calibre and qualifications as to contribute to company policy and planning. In other words, the director of purchasing is expected to be a "top side" executive, and if he fails to meet this responsibility through adequate education and development, he is "off side" in his concept of the job.

Relating this to the educational program, Mr. Aljian said: "We on the Committee are cognizant that the formula for the successful P. A. is technical knowledge, plus practical experience, plus top personal qualities. At present our chief objective is technical education, though other parts of the formula are not being overlooked. Both short and long range objectives have been defined. We have a balanced program developed, and a reasonable schedule of accomplishments so projected as to cover the greatest territory and be of use to the largest

number of members."

He urged active participation in the educational program both by individuals and as a local association activity. In particular, he stressed the point that professional education should not be regarded as a project for one, two, or three years, but as a continuing and growing process of major importance to the individual and to the profession.

The P. A. as Administrator

J. Donald Hogg, Purchasing Agent of the Cleveland Electric Illuminating Company, presented a thoughtful and stimulating paper on the administrative aspects of purchasing work. Most Association members are the heads of purchasing departments, and a survey of

representative cases confirmed his assertion that the greater portion of a man's time in such a position is spent on administrative rather than functional duties. Yet little attention has been given to this phase. His observations and recommendations are presented in full in this issue.

Trends in Stores Operation

Horace L. Brewer, Purchasing Agent of Consumers Power Company, Jackson, Michigan, made the concluding address. In an interesting, informal discussion he likened the problems of purchasing and stores operation to those he had encountered as Chairman of the Greens Committee for his golf club. Successful storeskeeping methods must be built on a sound foundation and make use of modern equipment and methods. It is necessary to kill off the weeds and prune out the dead wood systematically; too often we are concerned with how to perform a given operation when the real question should be why we do it at all. Storerooms and systems, like fairways and traps, can be laid out so as mechanized equipment can do the job instead of slow and costly hand labor. Finally, watch for the grubs, the hidden small leaks and errors and inefficiencies that insidiously destroy all that you have been striving to build.

The report of the Resolutions Committee, with formal acknowledgment to all who had contributed to the success of the conference, was presented by Robert E. Shillady of the New England Power Service Company, Boston. Chairman Cole then adjourned the meeting, to reconvene in June at the time of the NAPA convention.

Committees

The officers of the Public Utility Buyers group, who were in general charge of the meeting, are:

Chairman: George H. Cole, Alabama Power Company, Birming-

ham.

Vice Chairmen: Chester F. Ogden, The Detroit Edison Company; Stephen J. Kennedy, Springfield (Mass.) Gas Light Company; and Robert V. Stephens, Public Service Company of Oklahoma, Tulsa.

Secretary-Treasurer: J. Donald Hogg, Cleveland Electric Illuminat-

ing Company.

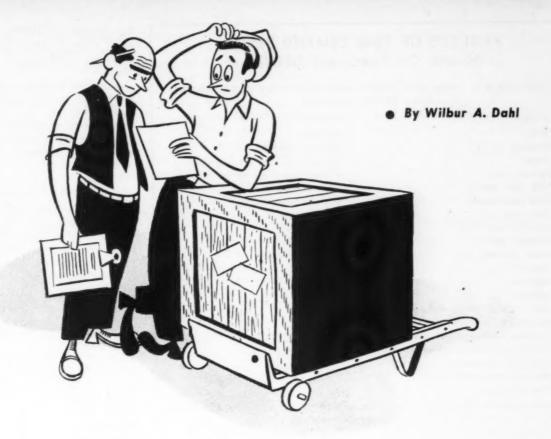
The committee on local arrangements for the conference consisted of A. C. Bull, Pioneer Service & Engineering Company, Chicago (Chairman); Newman C. Stirewalt, Central Illinois Public Service Company, Springfield; and J. Donald Hogg, Cleveland.

The committee on resolutions included Robert E. Shillady, New England Public Service Company, Boston (*Chairman*); J. R. Carmichael, Georgia Power Company, Atlanta; and Paul D. Crary, Cincinnati Gas & Electric Company.

The committee appointed by Chairman Cole to nominate officers for 1949-1950 at the June meeting includes Russell C. Wenz, Philadelphia Company, Pittsburgh (Chairman); James K. Hall, Columbus and Southern Ohio Electric Company; and Charles F. Wilson. Lone Star Gas Company, Dallas.

A. C. Bull (Chicago), Tracy Brownell (New York), Russell Wenz (Pittsburgh), and James K. Hall (Columbus).





Shipping Time Instructions Should Be Specific and Clear

LET us suppose you are a manufacturer in Chicago. You receive a purchase order for your product from a company in Philadelphia. Among the terms is a time demand which reads, "Shipment required September 1, 1949." Would you calculate the transportation time and release the goods from your plant, let us say, a week in advance? Or would you release your goods on September 1st? Whatever your interpretation of this term might be, it is quite possible that it would differ from your customer's intent.

A study of purchase order contracts originating with business concerns all over the country, in which the writer participated, showed that the time demands for the shipment and delivery of goods are worded in a variety of terms and clauses. The variety of terms and clauses, the study brought out,

Ambiguity in phrasing purchase order terms leads to misunderstanding and confusion.

Put yourself in the vendor's place and try to interpret your own instructions.

A simple suggestion to clarify time demand terms in purchase orders.

gave rise to a variety of interpretations which would require the composite wisdom of the Supreme Court and the cunning of a Philadelphia lawyer to unriddle.

Consider how you would interpret a few terms and clauses incorporated by purchasers into their order contracts. Would you say that "Shipment schedule July 1, 1949" means the time when the vendor should release his goods

from his premises? Or the time when the purchaser should receive the goods on his premises? What is the difference between "Ship May 5, 1949" and "Deliver May 5, 1949: do not ship earlier unless authorized by us"? How would you interpret "Date wanted", "Ship date wanted", "Shipment wanted", "delivery wanted", "Ship date desired", "Ship date needed", "Delivery: ship July 8, 1949", "Deliver

ANALYSIS OF TIME DEMAND TERMS FOUND ON PURCHASE ORDERS

Schedule A - Terms which express and imply when goods should leave vendors' premises.

IMPLY

Shipment schedule

Date of shipment

Time of shipment

Do not ship in '49

Early January

Deliver.....do not ship earlier

unless authorized by us

Shipment date requested

Shipment date required

EXPRESS Ship Shipping date Send Release date Ship date wanted Ship date needed Ship week of..... Ship 12 each month Delivery: ship Make shipment Dispatch Ship on Release Ship 12 on 10th of each month

Delivery 12/1, under no circumstances are you to ship this material before date specified unless otherwise instructed

Shipping date specified

Ship after

EXPRESS

Deliver

Schedule B — Terms which express and imply when goods should arrive at purchaser's premises.

Delivery Delivery wanted Delivery schedule Delivery needed Delivery desired Here Deliver week of Deliver 12 each month Wanted at destination Delivery date requested Deliver..... do not ship before 1st of the month needed Delivery required Delivery date required Wanted in our plant Material wanted deliver.....sure Ship to arrive Delivery on Delivery for Schedule to arrive Please hold delivery date..... Due date

Wanted Date wanted Date desired

Date needed Shipment needed Shipment wanted Requested Shipment required

Delivery: Dec. 1, our truck will pick up when ready

Required not earlier than Delivery expected

Schedule C - Terms which express and imply a voidance of contract * if not met.

EXPRESS

IMPLY Deliver....., or cancel order Deliver not later than

Ship....., or consider void Ship not later than Ship earlier than.....or not at all Must be shipped not later than

Schedule D - Terms which are used for time references, but do not bind vendor to specific dates of shipment or delivery.

Ship by Deliver by week of Deliver by Ship in four weeks Need by Ship.....or sooner Ship....., rush Here by Deliver before Ship....., emergency Dispatch before week of.... Shipment complete Ship before

Deliver.....or sooner Wanted.....or earlier Shipment required-3 weeks

Ship in thirty-five days

by August 10, 1949", "Deliver not later than August 10, 1949", and "Deliver August 10, 1949 sure RUSH"?

Purchasing agents are interested in clearing up the meanings of these terms because, as writers of the terms, they want their instructions to be clearly understood by their vendors and, if need be, by the courts of law.

Need for Clarification

* There are four essential reasons for the satisfactory clarification and standardization of time demand terms of purchase order contracts: 1. Enhancement of good will.

2. Minimization of costs of misinterpretations.

3. Promotion of orderly movement of goods.

4. Mitigation of number of price disputes.

Let us examine these reasons one at a time. Purchaser A in ordering from vendor B showed a time specification which read, "Shipment required April 1, 1949", with a subshipment specification reading, "Important: delivery not to be made before date required." The vendor. allowing a week for the transportation of goods, translated the customer's shipping specification to an internal shipment instruction which read "To be shipped March 25, not before." It so happened that the goods were not shipped until March 31st, but even so it brought the following complaint from the customer.

"We continue to have difficulty with shipments that are not to be made before the date specified on our orders. This particular order specified "Delivery April 1" and you shipped and billed on March 31. It would have been satisfactory to ship on March 31, and marked the invoice as of April 1, but unfortunately you did not do so."

Here is a case where the purchaser wanted primarily to be billed April 1, but this purpose was neither expressed nor remotely implied. In fact, by the use of his terms, he conveved the impression to the vendor that he wanted to use his purchased goods beginning April 1. The customer meant "ship," but he said "deliver". The vendor was "wrong" because he interpreted it in terms of delivery. Here is confusion. Here is a buyer and seller dispute. One wonders what the court's interpretation would be if the dispute were weighty enough for legal application. We must admit, however, that buyer and seller relations were strained, an account was in peril, and good will was impaired. A clarification of terms, on the other hand, would have at least sustained or promoted good will.

Confusion Costs Money

Misinterpretations add to costs, the survey showed. During the first half of 1948, vendor C had a socalled verbal arrangement with purchaser D in which the vendor was authorized to respect the time demand clause if it read "Shipment: May 1, 1948—not before", but which the vendor was told to disregard if it simply read "Shipment May 1, 1948." The vendor followed these instructions for a period of four months, but here was manifest term confusion. Later the purchaser billed the vendor for a sum well over a thousand dollars for all the shipments which were permitted to be made unrestricted and unbound by the time terms. It was a costly misinterpretation.

Additional elements of costs were reflected in the return of goods shipped too soon, and in the maintenance and staffing of departments of order service whose duty it was in part to clear up and smooth over such misunderstandings.

Because of misunderstandings and misinterpretations of terms the movement of goods was not orderly, the survey revealed. Fundamentally, there were four purposes, taken singularly or in combination, which motivated purchasers to ask for goods at a specific time. They were (1) use, (2) storage, (3) resale, and (4) billing. If the buyer's problem was one of the rate of usage, storage space and/or the preservation of goods, there would have been better understanding if the seller knew about it. Or if the buyer's problem was one of resale, or the consolidation of various goods for resale, or if it was one of finance. there would have been better buyerseller rapport if the vendor knew about it and could then have related it to the time demands for the shipment of merchandise. But very seldom were the time terms so worded that any of these motives or purposes was obvious to or uncovered by the vendor. As a result, the movement of goods was not as clean, as clear, and as orderly as it might otherwise have been.

In an unstable economic period such as we are now experiencing, when rising costs invoke escalator clauses and eventually provoke price rises, misunderstandings between buyers and sellers over the time terms give rise to price disputes.

Purchaser E, for example, carried a "delivery schedule" showing specific dates in the upper right hand corner of his order contract. Vendor F respected the dates. The understanding was well and good and went along for years until one day a shipment of goods, delayed at the vendor's plant because of the time terms was caught in a price rise. (The vendor had changed his pricing policy from a price asked at the time of accepting the order to a price prevailing at the date of shipment.) The purchaser then argued that this should never have happened, the delivery terms were not meant to bind the vendor, and they were placed there only for the purchaser's internal use as a follow-up system for ordered merchandise.

Call an Interpreter

Many purchasers were forced to write letters and notes of interpretation to their vendors, the survey showed, to clear up misunderstandings. In effect this is what some of them said:

1. We use "must arrive", but do not ship material before the first of any month mentioned.

2. We use "required date", but this will confirm our understanding that you may ship any and all orders when material is ready.

3. We use "delivery schedule", but you may interpret it as meaning on or before.

4. If we place a date in the space on our order marked "delivery required", you may disregard it and ship as soon as possible. If on the other hand, we place instructions in the body of the order, for example, "to be shipped October 10, 1949 unless otherwise requested," then those dates are to be adhered to.

5. "Deliver" means "ship" when we use it.

6. We use "wanted our plant", and note carefully, material must arrive approximately on date required. If received considerably ahead of due date, material will be returned without further notice.

7. For purposes of controlling inventories we cannot accept responsibility for shipments in advance of "wanted dates". Invoices will be held and paid when the wanted date becomes due. In view of the above, we shall follow the same pattern of taking discounts as has been heretofore in effect.

It may readily be observed that vendors are bothered by a variety of meanings given to the common time terms written into order contracts by their purchasers. The terms are used in various and conflicting ways. Agreement about what is a proper definition or interpretation of a term is an idle, futile and illogical pastime. The right to define and use a term as one pleases is not conducive to orderly commerce. If a purchaser wants to be clearly and properly understood by his vendors he must use a term or terms that connote what his vendors understand it to mean. The need is obvious for the clarification and standardization of terms.

The Vendor's Dilemma

As a start toward the standardization of term usage by the purchaser, let us standardize the interpretations of terms with which a vendor must now deal. (This device puts the buyer in the seller's shoes.)

A frame of reference for the interpretation of time demand terms is set up as shown in the accompanying schedules, A through D. Schedule (A) shows the terms which express and imply when goods should leave the vendor's premises; (B) the terms which express and imply when goods should arrive at the purchaser's premises; (C) the terms which express and imply a voidance of contract if not met; and (D) the terms which are used for time references but do not bind vendor to specific dates of shipment or delivery.

From these schedules a purchaser captures a conception of the thought processes through which his vendor must pass in his effort to determine the intent of the time terms.

One Word for the Job

But let us come directly to the very core of this proposal. The time demand terms can best be reduced to the lowest common denominator and standardized by using solely and exclusively the term "ship". It is a neat four-letter word, a clear, concise, functional verb that connotes the specific meaning of the emergence of goods from the vendor's premises. Nothing else. It will have complete functional understanding by buyer, seller and court.

Of course modifying the functional verb "ship" with the purpose or motive behind the customer's time demand aids immeasurably the meeting of minds between purchaser and vendor. A few concerns used this term-motive combination, it was noted, with absolute clear and telling effect. Their term read "Ship and bill July 1." The ship-motive term is therefore recommended.

The functional verb "ship" can be (Please turn to page 314)

Purchasing in the Chemical and Wet Processing Industries

OBSERVATION of the purchasing problems in a group of chemical plants, laundries, and textile dyehouses reveals certain items that should be given special consideration because of the important part they have in the cost of the process. The list of materials purchased depends, of course, upon the nature of the operation. In this group classification the important materials include chemicals, soap, bleached solutions and powders, starch, sulphonated oils, and the Operating and maintenance supplies run rather heavily to pipe, valves and fittings. Shipping supplies, such as containers, wrapping paper, paper or wooden boxes, twine, tags, and paper tape, are standard requirements as in most other industries. Particular importance attaches to the purchase of water and conditioning it for the process, and fuel for the generation of steam.

Cost of Water

Water for chemical or dyehouse use, and in the laundry industry, is not merely something that comes out of a pipe; the percentage of "hardness" or "softness" due to its chemical content is an important factor in the process, and frequently this factor must be adjusted by various means of conditioning it prior to use.

Purchasing water from a local or municipal water company is based on commercial rates—usually a fixed meter charge, plus quantitative charge for the water used, the scale of prices declining as the volume of use increases. If the water is not soft enough for processing purposes, a water softener must be installed.

The zeolite water softener is the one commonly used. Zeolite is a type of filter sand, consisting of silica with iron oxide, potash, and alumina. It extracts the calcium and magnesium compounds that make the water hard, by a process of union, and is regenerated for further use by passing common salt

Special problems encountered in textile dyeing, laundries, and chemical process plants.

Water softening is a major consideration, and costs must be carefully watched.

Inventory control applied to maintenance items and stocks of dyestuffs.

By Irving Teplitz

brine through it. The type and quality of zeolite governs the period of time for which it can be used before regeneration is necessary. In one instance, on a zeolite water softener with a capacity of 350 gallons of water per minute, the difference in cost between a zeolite to be regenerated once a day and one that needed regeneration only every third day was about \$500, surely a capital investment well worth while. It costs about 1 cent per pound of salt to regenerate zeolite softening 1000 gallons of water with two grains hardness.

The demineralizer water softener delivers water of zero hardness, which is very desirable. However, the cost of operating such a softener is about 10¢ per 1000 gallons of water, which is expensive when we consider that the industrial cost of water is from 15¢ to about 5¢ per 1000 gallons. The demineralizer water softener is suitable for laboratory purposes where the amount of water used is relatively small and the purity highly important.

The value of a water softener is readily seen for laundries and dyehouses because hard water increases the amount of soap needed to perform a cleansing function. It is estimated that $1\frac{1}{2}$ to 2 pounds of soap are needed per grain of hardness per 1000 gallons of water, in addition to the soap needed to perform the detergent action. With soap at 15¢ per pound and up, it is

obviously worth while to soften water. Soft water will also save in the amounts of other chemicals used a in processing.

Liquid Brine Systems

The installation of a liquid brine system saves in the purchase of common salt used for regenerating the water softener. It permits the use of rock salt, costing 10% to 15% less than crystal salt. If it is assumed that the plant in question uses a million gallons of water per day, and a thousand pounds of salt per day for softening, the salt used will be about \$10 a day (at 1 cent per pound) and about \$1 per day, or more than \$300 per year can be saved on this item alone in the use of rock salt as compared with crystal salt. This is in the purchase cost alone; there are some other substantial though "invisible" savings. For instance, where there is a liquid brine system, the brine is usually made at the point where the rock salt is received, and the brine is pumped through pipes to the point of use. Crystal salt, on the other hand, comes in 100-pound bags, which must be trucked to the point of use, and it costs considerable money to have a man cart a few tons of salt every so many days.

The liquid brine system consists of a means of dissolving the rock salt in water, checking the amount of salt in solution, and piping it to the point of use. A meter is used



(Photograph by courtesy of American Iron & Steel Institute)

Water and steam are basic ingredients of the commercial laundry, as in the textile dyehouse and other wet processing chemical industries.

to control the amount of salt in the solution, according to the use requirement.

A similar type of system can be utilized for comparable savings on other items used in the plant, such as soap and detergents. Detergents can be purchased in various concentrations as desired-100%, 50%, 25%, and 10%-and is usually delivered in 55-gallon drums. There is a saving to be had by purchasing detergent in bulk, as the producer naturally passes along the cost of diluting and packaging the lower concentrations. There is an additional saving in the purchase of the higher concentration, as the transportation charges will not then apply to the transportation of water, which can be added to the detergent just as well at the plant. Often, there is also a saving in the dilution of detergent within the plant due to the exact control of the percentage concentration needed for the work. The writer purchased 25% concentration of detergent at 15¢ per pound and later bought 100% concentration at 45¢ per pound. Upon experimenting with the concentrated detergent, it was found that a 121/2% concentration was just the amount needed for the purpose. Hence, the detergent used in the plant cost less than 6¢ per pound instead of 71/2¢, and there was an additional saving of some transportation charges.

In the operation of chemical

process plants and kindred types of business, the purchase of bulk chemicals in carload lots as against purchase in drums or carboy containers is one of the critical points of thrifty purchase management. When chemicals are bought in car lots, there may be additional capital investment needed for transferring liquids to storage tanks. Some storage tanks have to be lined with rubber or other expensive materials so that the corrosive acids do not start up another chemical reaction with the stainless steel tank. However, where the quantity used by the plant justifies the capital investment, chemicals are cheaper and are easily handled in a carlot, pipe-pumpstorage method of purchasing.

Similarly, an investigation of the chemical needs of the concern may change the methods of purchasing certain liquids and solids. A laundry or textile dyehouse, for example, using quantities of liquid sodium or calcium hypochlorite, should concern itself with an investigation of the possibilities and relative cost of manufacturing the hypochlorite on the premises. There are other items commonly purchased by chemical firms over long periods of years which could be manufactured easily and more cheaply at the plant, be-lieve it or not. There would of course be a change in the products purchased-whether chlorine gas along with soda ash, for instance, in place of liquid hypochlorite-and it

often needs the purchasing agent to point out these differences to management.

In this field of purchasing, as in many others, the ability and the effort of the individual in making the purchase is valueless without a check on the purchased item as delivered. Fortunately, most concerns of this type have, or should have, a laboratory, which can be used for testing the items purchased as well as the finished product. Only a laboratory test can verify if ammonia is in 25% concentration, if acetic acid is in 28% concentration, or if sulfuric acid is 96% at 66 degrees Be'. If the purchasing agent checks the concentrations of each and every purchase, he has an excellent check on the value of his purchases Sometimes the offer from one supplier is at the same price as from another supplier, after the check of quality and percentages has revealed interesting facts of variations in relative value due to the relative concentrations of the item purchased.

The buyer must also learn something of the characteristics of the items used, as some chemicals have a tendency to lose strength during storage periods. If a product loses strength in storage, there should be a constant check on the inventory of such material on hand, so as to eliminate loss of dollar value due to

such factors.

Fuel Purchases

The fuel item for generating steam in chemical and wet processing plants is an important item of cost. There is a wide variation in the price of different types of coal, and also in their respective fuel values. But this is not by any means the complete story on fuel For effiselection and purchase. cient operation, the coal must be adapted to the characteristics of the boiler and grate construction, and proper firing methods must be used. All of these factors also have a bearing on the life of the grates, a set of which may represent a cost in excess of \$1,000, plus installation. It is good practice to set a regular schedule for shutting down the boilers for inspection, overhauling, and repair.

Boiler grates are renewed every few years. At this time particularly, there should be an investigation to determine the most efficient and economical combination of grate size, type and size of coal to be used, for these costs go on con-

(Please turn to page 316)



More than 2200 supply items are handled in this stock room. Simple records tell how much is bought, how much is on hand, and how it is used.



Supplies are controlled at one central point. The purchasing office adjoins the supply room.

A Supply Purchasing System for the Small Mill By John M. Gregory

Centralized responsibility stops small leaks that grow into large losses.

Simple forms control purchases and inventory with minimum effort.

Accurate records make past experience useful as a guide to current usage and costs.

AROLD TUTTLE, Purchasing Agent for the Rocky Mount Mills, Rocky Mount, N. C., directs a purchase and stock control system which he personally devised and installed for a particular plant. After nearly three years of operation, during which the details have been successfully worked out in the light of actual experience and working conditions, there is plenty of evidence to show that it has saved money and speeded operations for his company, that it can be directly applied with comparable benefits to any small textile plant—30,000 to 50,000 spindles, and can be adapted with minor variations to small manufac-

turing plants in other fields as well, and will more than pay its own way.

Mr. Tuttle had spent fifteen years with the Rocky Mount Mills, with time out for war service. On his return, he was made purchasing agent. As is characteristic of the textile industry, the responsibility of this assignment was limited to operating materials and supplies, purchases of raw materials and major capital equipment being handled by the management.

His first step was to make a personal study of conditions and methods used in other small plants. The results of this survey were largely of a negative nature, revealing many

instances of waste, lack of control, lack of records, and the issuance of supplies at random, without proper authorization, almost anyone being permitted in the stockrooms. In many of the small plants, buying was done by superintendents and department overseers, and the time spent by these officials in talking with salesmen constituted another intangible but none the less real factor of expense. It was obvious that many losses existed, being "absorbed" in general expense accounts and coming out of profits, but there was a widespread belief that "purchasing overhead"-the expense of a purchasing agent, stock clerks, and adequate records-would overbalance such losses. Tuttle thought otherwise. Accurate records of purchases and department spending would be necessary to provide any real conception of what these losses amounted to, and to provide the controls necessary to eliminate them.

With the background of his own experience in the industry and his knowledge of what was required to keep a small mill running effectively, sharpened by his observations of the shortcomings in prevailing practice, he evolved a simple form of centralized purchasing procedure as used in the larger mills, adapted to the conditions of his own particular assignment. The system was installed in June, 1946. His carefully kept records, which are basic but not elaborate, show a distinct improvement in purchasing performance and substantial savings for the company.

His office is located adjacent to two stockrooms, where approximately 2,200 items are kept in stock. In a steel file beside his desk, he maintains a permanent card record of all items, showing orders placed (with order number, date, vendor, quantity, and price), receipts, quantities issued and balance remaining in stock. The heading of the card shows the name of the article and bin location in the stockroom, departments using the item and for what purpose, and the maximum and minimum stock quantities. It thus serves the triple purpose of a purchase order record, perpetual stock inventory, and guide to the rate of usage. The latter feature is particularly valuable in scheduling purchases so as to have material on hand when needed, without building (Please turn to page 322)

Key forms in the Rocky Mount Mills purchasing system.

ROCKY MOUNT MILLS
REQUEST FOR SUPPLIES OR MATERIALS

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то	400				19_
				Order No.	
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MODLIN 7 46	Acknowledge receipt of Advise promptly all go				e.
Order	Number Must Appear on	All	ROC	KÝ MOUNT	MILLS
	pices, Packages and Cases		A DUBADIN		-
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sived from	ght Express	Parcel Post_	Motor Expre	ssOwn 7	ruck
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eiving or	Shipping Clerk				
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Th retained	is inquiry is in duplicate. by you.	Original must be	returned to us p		
No	charges will be allowed	for packing or c	artage.		~
Quanti	ty	DESCRIPTION	***************************************	Date Wanted List	Price Diec. Net
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	ky Mount Mills, Rocky Mount, N. C.				
w				Shipment will b	e made in

To be made out in triplicate

Seller's Liability for Unfair Trade Practices

During the past few months the higher courts in different states rendered several unusually important decisions illustrating when, and under what circumstances, sellers are liable for unfair practices in sale of merchandise. It is true, of course, that in some of the hereinafter explained legal controversies the seller did not intend to be unfair. Nevertheless we shall include in this review of late and leading higher court decisions which illustrate when a seller is liable for practices whether or not intentional. It is certain that both buyers and sellers are responsible and liable for their unfair practices, irrespective of the fact that the wrong was not anticipated nor intentional. It is for the latter reason that purchasing agents especially, and all other purchasers, should have dependable legal knowledge involving this subject of law. Such knowledge certainly will prove profitable, sooner or later.

Federal Trade Commission

First, it is important to know that the Federal Trade Commission has authority to prevent sellers from practicing unfair methods in sale of merchandise in interstate commerce.

For illustration, in Consumers Company v. Federal Trade Commission, 164 Fed. (2d) 972, the Federal Trade Commission sued the Consumers Company and ordered it to cease its sales plan which the commission held constituted false representations and fraudulent schemes.

The testimony showed that the company's salesmen exhibited to prospective purchasers samples of radios different from those actually delivered. The testimony showed that these solicitors represented to prospective purchasers that the radios were limited in quantity, and were offered at a special sale price at a great saving over regular prices.

The higher court ordered the company to stop these unfair practices and said:

"The testimony as to the individual transactions was evidence of the merchandising plan and policy Purchaser is protected against losses from fraudulent claims and representations.

Competitor cannot capitalize on another's established trade name and good will.

Buyer's failure to use reasonable judgment and caution is contributory negligence.

By Leo T. Parker

of petitioner (company) and shows the course of business engaged in by its agent and solicitors. . The findings and the cease and desist order were carefully limited by the Commission to those practices which the evidence showed were performed in interstate as well as intrastate commerce. The findings of the Commission are amply sustained by the record, and hence are binding upon this court."



The court also held that the Commission's order directly applied to officers of the company, saying:

"Since Harry H. Willis, during all the period involved, was an officer and director of the corporation, responsible for its policies and practices, the order properly applies to him as well as to other officers and directors."

With respect to the argument presented by the company that a majority of its sales were made in its home state Michigan and therefore interstate commerce was not involved, the court said:

"The fact that a number of the transactions of which evidence was given occurred in Michigan, the corporation's state of residence, does not lessen the relevancy of the evidence as to the interstate practices shown to exist."

Similar Tradenames

Very frequently two corporations or firms have similar tradenames. It is certain that the last corporation or firm to adopt its name can be stopped from further use of the adopted name if the testimony shows that the buying public is likely to be deceived.

For illustration, in Consolidated Home Specialties Company v. Plotkin, 55 Atl. (2d) 404, the Consolidated Home Specialties Company sued the Consolidated Home Supply Company, for an injunction against use of the word "Consolidated". This court held that the question as to the unfairness of competition in names is primarily whether the public is likely to be deceived. This court held:

"This testimony shows that the tradename 'Consolidated Home Supply Company' is so close an imitation of plaintiff's tradename as to confuse that part of the public dealing with these respective parties. The law will not sanction the assumption of a deceptively similar name in order that the appropriator may capitalize on the good will and reputation established by plaintiff company."

Also, see H. Macy & Company, Inc. v. Macy's Drug Store, Inc., 84 F. (2d) 387. The higher court enjoined Bernett and Rosenfeld, who registered their drug store as "Macy's Drug Store". The court said that the use of the word "Macy's" "was intended to, and had a tendency to, mislead and deceive the public into the belief that the new business was connected with the old business and it was a "palpable" attempt to make use of the reputation and good will acquired through many years of advertising, and appropriate it to the benefit of the new company and deceive the public.



The fact that directors and stockholders of a corporation sell all assets without contracting not to organize another corporation, does not mean that the new corporation may

adopt a similar tradename.

For example, in Neuhoff, Inc. v. Neuhoff Packing Company, 167 Fed. (2d) 459, it was shown that a stockholder named Neuhoff joined with other stockholders in the execution of a deed and sale contract conveying to Neuhoff Packing Company the property, good will and right to use the corporate name of "Neuhoff Packing Company"

Thereafter Neuhoff and others organized "Neuhoff, Incorporated".

The higher court enjoined the latter corporation from doing business or having any dealings anywhere in Neuhoff Packing Company's trade territory under the name "Neuhoff Incorporated", and from using words "Neuhoff" and "Neuhoff's", singular or in combination with other words, in advertising or selling its products.

Plans Copied

According to a recent higher court merely copying an article unprotected by a patent, copyright or trade-mark is not "unfair competi-

See Airolite Company v. Fiedler, 147 Fed. (2d) 496. Here it was shown that a company sued a man named Fiedler for unfair competition and for the infringement of U. S. Pat. 1,722,059 which was granted for a ventilator.

During the trial the testimony showed that the company makes and

sells ventilators in varying sizes, and that Fiedler was guilty of using in his catalogue drawings and plans originated by the Airolite Company. The court said:

"Unfair competition was not shown merely by the copying of the uncopyrighted drawings the plaintiffs (Airolite Company) had made but had no exclusive right to use."

Hence, this late higher court decision establishes the law that any person, firm or corporation may without any liability copy any catalogue, plan, specification, label and the like if the owner or originator has no legal right to exclusive use of it.

Also, according to a recent higher court an unreasonable delay in filing a suit based on unfair trade practices or competition is fatal, and the complaining party cannot win the

For illustration, in Siegal v. Karenola Radio Corporation, 76 N. E. (2d) 802, one Siegal sued a corporation to recover damages, profits and a steel mold used by the corporation for production of radio cabinets. Siegal based his suit on "unfair trade practice" and asked the court to allow him profits earned by the corporation during the time it used the steel mold.

The higher court refused to hold in favor of Siegal because the testimony showed that his suit was not filed until five years after he acquired the exclusive right to manufacture or market the cabinets in question by use of the mold.

Label Is False

Modern higher courts consistently hold that a manufacturer or seller who uses a false label is liable in damages to all purchasers who suffer financial loss or personal injuries when relying on the statements in the label. This law is applicable although the manufacturer or seller did not intend to falsify the label.

In Maize, 41 Atl. (2d) 850, the testimony showed that a purchaser died as a result of inhaling the fumes of a poisonous chemical. while cleaning a rug. The label said: "A Highly Efficient Dry Cleaner" followed by these works. Will every dry cleaning purpose. Will former fabrics." On followed by these words: "For not injure the finest fabrics." the can there twice appears the word "Caution" and on four sides of the can the trade-mark appeared which consisted in part of the word "Safety".

The purchaser had a headache from inhaling the fumes and later died because the fumes entered the

blood stream and destroyed the liver and kidneys.

The higher court held the de-ceased person's dependents entitled to recover \$10,000 damages from the seller of the cleaning fluid. This court stated law, important for readers to know as follows:

"One duty imposed by law is to use due diligence to avoid causing harm which an individual has no legal right to inflict upon another. This duty is breached by any legally harmful act or omission which might have been foreseen and avoided.'

For comparison, see McClaren v. Robins & Company, 349 Mo. 653, 162 S. W. (2d) 856, 859. In this case a person suffered injuries from the use of carbon tetrachloride which he had purchased. The label stated: "Volatile Solvent, use with adequate ventilation. Avoid prolonged breathing of vapor.'



The higher court refused to hold the seller liable in damages for injuries suffered by the purchaser, because the fluid was labeled as carbon tetrachloride and, no other words were on the container that caused the purchaser to carelessly use it for ordinary cleaning pur-

Also, see Zartner v. George, 145 . W. 971. The Supreme Court held that displaying the words "Caution" on a label will not relieve either a manufacturer or retail seller from responsibility for injurious effects to the purchaser. This court held that in order to avoid liability the seller must prove to the jury that his negligence did not result in the injury to the purchaser of the dangerous preparation.

Another court said:

"The display . . . the word 'Caution' in 1/4" letters followed by the words in 1/8" letters: 'Do not inhale fumes; use only in well ventilated places,' is not sufficient notice to cause every user to use the fluid in a place sufficiently well ventilated to blow the fumes away. In other words, this court held warnings in small print on a label is 'unreasonable' and cannot relieve a seller from

liability."

On the other hand, it has been held that a seller is not liable for injuries to purchasers, if such seller could not have foreseen possibility of an injury by exercise of ordinary care.

For illustration, in Poplar v. Bourjois, 80 N. E. (2d) 334, it was shown that a woman was showing her sister perfumes and cosmetics when she pricked her finger on the point of a silvery metal star that adorned the gift box in which they were contained. A serious streptococcus infection developed, she became gravely ill, and the infected finger had to be amputated.

The woman sued the *retail* store from which she purchased the perfumes and cosmetics, and also the manufacturer of the perfumes and

cosmetics.

The woman contended that both the retailer and the manufacturer were liable in damages because the injury-producing star was not fastened securely to the box, and the point of the star had become upturned. The woman claimed that the box which caused her injuries was "dangerous to life and limb."

The higher court refused to hold either the retailer or the manufac-

turer liable, saying:

"As a general proposition, liability for negligence turns upon the foreseeability of any harm resulting from the careless conduct, . . . If a negligent act be the reasonable and proximate cause of an injury the injured person is entitled to recover for the harm actually suffered, even though the precise nature and extent of these injuries, as they finally developed, were more severe than could ordinarily have been foreseen . . . As a matter of law, an article such as the Bourjois box may not be regarded as inherently dangerous, a menace to health and life.'

Defective Equipment

According to a recent higher court a purchaser can recover damages from a manufacturer whose equipment is defective and caused financial loss.

For illustration, in Oregon v. Fruehauf Company, 189 Pac. (2d) 329, it was shown that a company purchased from a manufacturer two motor trucks. Shortly after purchasing the equipment one of the drivers had an accident and considerable merchandise was destroyed. The driver examined the fifth wheel of the trailer and dis-

covered that the soft metal flange had worn off the adaptor pin.

The company sued the manufacturer for full damages contending that the latter was liable because all manufacturers *impliedly guarantee* that their equipment is reasonably worth the purchase price.

In holding the manufacturer liable for \$14,665.00 the higher court said that a manufacturer is liable on an "implied" guarantee that his product is worth the purchase price and is reasonably free from defects.

Purchaser Hangs Self

Another interesting point of law, recently decided by a higher court is this: No seller is responsible for injuries or financial loss to a purchaser who failed to use ordinary good judgment to protect himself.

For example, in Scott v. Greenville Pharmacy, Inc., 48 S. E. (2d) 324, the Greenville Pharmacy was sued for heavy damages by the widow of a man named Scott. The widow based her suit on these allegations: In December Scott suffered from a cold, which later developed into flu, leaving him in a very nervous condition. To alleviate this condition, he went to the drug store of the Greenville Pharmacy and asked for some drug which would "ease his nervousness and promote sleep." In response to his request he was sold barbiturate capsules in a box or container without any label showing the contents thereof. Periodically thereafter over a period of about a year the drug company continued to sell him the capsules. Finally while under the influence of the drug, or while suffering from moroseness, caused by habitual use of the drug Scott committed suicide by hanging.

The widow contended that the drug company was liable in damages to her, first, because the sale of the barbiturate capsules without a doctor's prescription is prohibited by the laws of the state, and that neither at the time of the original sale or at any time thereafter did Scott have a doctor's prescription; and, second, the drug company's employees were negligent in continuing to sell barbiturate capsules to Scott.

The higher court refused to hold the seller liable in damages and said:

"It is axiomatic that the violation of a statute, while negligence per se, will not support a recovery for damages unless such violation proximately caused or contributed to the injuries complained of. . . Scott knew the nature of the drug. He certainly must have known it after

taking the capsules following his first purchase. He continued to make periodic purchases and the complaint alleges that he acquired the drug habit. But long before he became an addict he must have realized the effect the drug was having on him, and his own contributory negligence would bar the action."

For further comparison, see King v. Henkie, 80 Ala. 505. Here a seller sold whiskey to a man named King who continued to drink until he died. King's widow sued the retailer for damages contending that King's mental faculties became so impaired that he did not know what he was doing, and the continued selling of whiskey to him made the retailer responsible and liable for his death.



The higher court refused to hold the seller liable saying that King's voluntary act in drinking so much whiskey was the proximate cause of his death, "whatever the condition of his mind or state of his intellect."

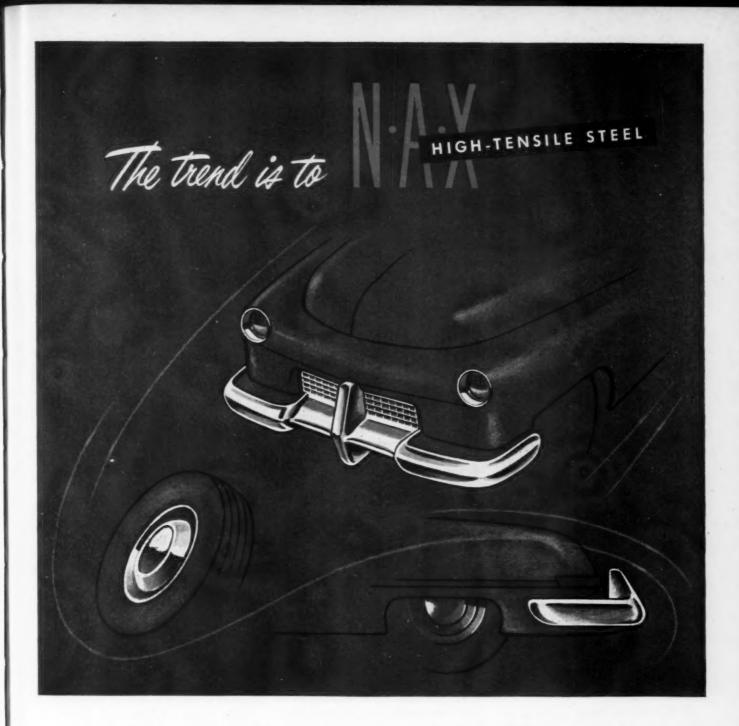
Obviously this same law is applicable to all purchasers, including those who purchase merchandise for resale. In other words, a seller never is liable for peculiarities or lack of good judgment on the part of a purchaser.

Deceitful Practice

Nevertheless, a seller always is liable for practice of deceit under which circumstances the courts hold that a purchaser need not exercise his own good judgment. We shall briefly review a few newly decided higher court decisions upholding this law.

For instance, in Marquis v. Pettyjohn, 212 S. W. (2d) 100, it was shown that a dealer showed a prospective buyer a used motor truck for \$550 and described it as being a 1938 model in first-class mechanical condition with good rubber.

In subsequent litigation the buyer testified that the seller delivered to him a 1937 model truck which was not in good mechanical condition. This was so because the motor block was cracked, and otherwise in poor



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mechanical condition. Evidence in behalf of the purchaser showed that the reasonable value of the 1937 truck in its condition when delivered was between \$125 and \$150.

The higher court awarded the purchaser ordinary damages in the sum of \$400, and punitive damages in the sum of \$500. This court said:

"Fraudulent representations constitute sufficient grounds for the recovery of damages . . . punitive

damages . . ."

It is important to know that other higher courts have awarded punitive damages up to \$3,000, in addition to ordinary damages, where the testimony showed that the seller of an automobile turned back the registered mileage on the speedometer, thus deceiving the purchaser as to the actual mileage on the car.



Also, see Shell v. Eounce Company, 210 S. W. (2d) 110, where it was shown that one Shell, the user of equipment, had mechanical trouble with it and took it to a dealer who told him that the equipment needed a new motor. Believing this Shell selected other equipment. The dealer finally allowed Shell \$775 for his old equipment. About a week later Shell learned no new motor block had been put in the equipment but that the dealer had sold it for \$1394, after spending \$145 for repairs.

Shell sued the dealer. The higher court indicated that the old equipment was worth \$1394 less \$145 or \$1249 and that Shell could recover damages equal to \$1249 less his

tradein price of \$775.

Seller Breached Contract

While a purchaser may recover punitive damages, in addition to ordinary damages, from a seller who practiced deceit or other unfair tactics, yet the seller is liable only in ordinary damages where he merely breached the contract.

In Great Atlantic & Pacific Tea Company v. Smith Canning Company, 75 F. Supp. 156, the Great Atlantic and Pacific Tea Company sued the Smith Canning Company to recover the sum of \$6,747.25. The testimony showed that on January 26, the canning company telegraphed the Great Atlantic and Pacific Tea Company, as follows:

"Do you want 3300 cases standard twos spinach 1.10 Government Certificate."

On the same date the tea company wired the canner, as follows:

"Will accept certified spinach offered if last of February shipment okay advise if available our labels."

Subsequently the parties reduced the agreement to a written contract which clearly stated that the tea company would purchase 3600 cases 24-2 Iona Label Full Standard Spinach at \$1.10 Dozen; that the same was to be shipped in box cars each containing 1800 cases of 24 cans with Government Grade Certificate attached to invoice.

Under the contract the canner shipped 3600 cases 24-2 Iona Label Full Standard Spinach. Later the Food and Drug Administration purchased and analyzed certain cans of the spinach and the analysis made by the inspector disclosed that the spinach contained aphis. The government confiscated the spinach.

The higher court ordered the canner to pay the tea company the amount of \$6,747.25, with interest,

saying:

"Where the goods are bought by description from a seller who deals in goods of that description there is an implied warranty that the goods shall be of merchantable quality."

Also, see S. F. Bowser & Company v. Brownell, 159 Pac. (2d) 572. Here it was shown that one Brownell, doing business as Yankee Cleaners, conducted a dry cleaning business. Brownell purchased from a manufacturer a Bowser-Bet-R Way Synthetic Dry Cleaning Unit, at an agreed price of \$3,760, to be paid for mostly by deferred payments.

For six months Brownell and the engineer and other experts of the manufacturer, so alleged by Brownell, failed to cause satisfactory operation of the machine. Brownell refused to make further payments, and sued the manufacturer to recover damages for failure of the dry cleaning machine to operate.

In holding the manufacturer liable in damages the higher court said that the manufacturer is liable in damages to Brownell, as follows: The amount paid on the purchase price to the manufacturer; the amount paid in freight charges on the dry cleaning unit; the amount allowed in trade for Brownell's dry cleaning equipment; also all ex-

penses paid out by Brownell in the installation of the machinery for labor, supplies and rent, and for additional store room; and all expenses paid out by Brownell during the period of time he was attempting to make the unit operate successfully. Also, this court held that the manufacturer would be liable for the actual losses sustained by Brownell in contracting out his dry cleaning during the period the machine was not operating satisfactorily.



Generally speaking, a purchaser forfeits all rights if he delays beyond the time limit specified in a sale contract to complain of defective merchandise or equipment. However, a late higher court modified this law by holding that under unusual circumstances, as where the seller practiced fraud, a purchaser may sue and recover damages at any time from the seller.

Guarantee Runs Out

For example, in McCown v. Jennings, 209 S. W. (2d) 408, it was shown that an automobile dealer sold an automobile for \$973 and issued to the purchaser a guarantee that the car was in good operating condition and would remain in such condition under normal use and service for a period of 30 days. The purchaser delayed 6 weeks in driving the automobile because he had no driver's license. When he got the license and drove the car he discovered that the dealer had acquired it in a wrecked condition from a wrecking company, and that the frame was bent causing the machine to wear out new tires in three or four days.

In subsequent litigation the jury held the car to be worth only \$400.00 at the time of its sale to the purchaser. Notwithstanding the purchaser sold the automobile for \$610, the higher court held the dealer liable to the purchaser for \$613.50 damages, and said:

"Appellant's (dealer's) contention that he is not liable in the case because appellee (purchaser) waited six weeks before he sold the auto-

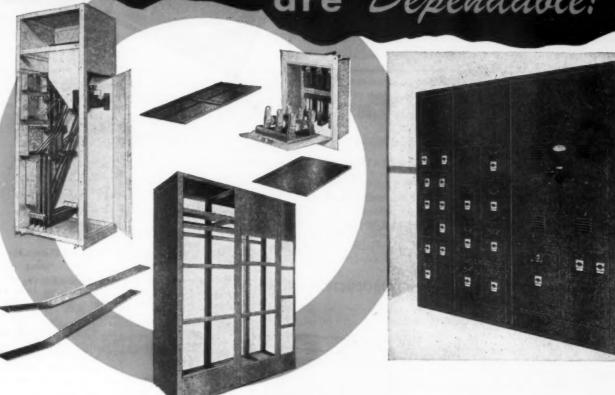
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CARBIDE TOOL GRINDER



MODEL WD-10 carbide tool grinder can be used either wet or dry. The 10" x 19" tables are equipped with a removable steel wear plate, and table slot, in which the compound protractor tool gauge

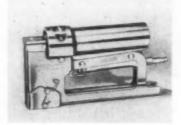
slides, has openings to allow for coolant drainage. Tables are quickly adjusted to any angle from 15 degrees above to 30 degrees below horizontal. Model WD-10S has 1 cup and 1 straight wheel. Catalog No. 220 available. Hammond Machinery Builders, Inc., Kalamazoo, Mich.

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RESN-X is described as a durable but resilient heavyduty floor resurfacer that can be brushed or troweled over any

type of floor—concrete, wood, tile, metal, etc. to a thickness of 1/32" to 1/16". It is said to remain unaffected by most acids, alkalis, oils, fats, syrups, etc. It is non-slip and a top electrical insulator. It can be used inside or outdoors, and is suitable as a safety stair-tread. Rock-Tred Corp., 627 W. Washington Blvd., Chicago 6, Ill.

HIGH PRODUCTION AIR TACKER



DUO-FAST high production air tacker operates on about 85 lbs. air pressure. The staples are driven just as fast as the trigger is operated. Design of the tacker allows operator a clear view of his work. It weighs 2¾ lbs. and is equipped with the quick-release Jiffy Jaw. Available in models to drive medium or heavy gauge staples from 5/32" to ¾" long in regular or narrow crown sizes. Fastener Corporation, 860-902 Fletcher St., Chicago 14, Ill.

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INDUSTRIAL mats and runners of sponge rubber, for use where employees must stand a good deal of the time, are

said to prevent foot and leg strain, promote safety, and reduce floor noise and breakage. Standard mats are ½" thick x 21½" x 47"; also ½" x 21½" x 23". Available in black or green; other colors on special order. Runners come in 47" units. Atlas Sponge Rubber Co., 806 E. 61st St., Los Angeles 1, Calif.

UNDERBODY COATING PUMP

THIS lightweight air-driven pump attaches to any standard 55-ballon shipping drum, the common container for underbody coatings. Dual material pistons give surgefree delivery of material at a rate up



to 5½ gallons per minute. The material is carried directly to the spray gun through a standard ¾" material hose. The unit handles materials of light or heavy viscosity. Binks Mfg. Co., 3114 Carroll Ave., Chicago 12, Ill.

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FLASH-BUTT WELDER

WELDING heads on this flash-butt welder are swivel mounted so; that two pieces can be butt welded or flash butt welded at an angle. The ends are cut square for both types of welding. Action is entirely



automatic and is controlled by micro switches. One button does all the work, but movements can be initiated separately. Each clamping jaw has its own foot valve and air cylinder with pressure regulator. Rex Welder & Engineering Co., Kansas City 8, Mo.

(Please turn to page 152)

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Calcium Pyro — Mineral supplement, pharmaceutical.

Tri Calcium — Tooth paste, tooth powder, anti-caking agent, mineral supplement, pharmaceutical.

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SELF-CLEANING DOOR MAT



RUSTPROOF door mat, made of aluminum bars with white brass connecting hinge-rods and die cast aluminum actua ting spacers between each bar, ejects accumulated dirt when folded. Its three hinged sections permit it to lie flat on irregular surfaces. Aluminum bars are ½" deep, 3/32" thick, and are spaced ¾" apart. Bars not only scrape shoe soles clean but squeegee moisture out at the same time, maker states. Ability Products, Dept. 151, 1788 Board of Trade Bldg., Chicago 4, Ill.

WIRE CONTROL AND STRAIGHTENER UNIT

METCO Type 2W wire control and straightener unit is of all metal construction for stability and continuous trouble-

free operation. Outer metal hoop keeps the coil on the reel and prevents "riding off". Adjustable to accommodate any size coil. Handles 3/16" wire easily. Ball type thrust bearing makes it free-running and eliminates all unnecessary drag from reel top. Adjustable parts are equipped with thumb screws. Easily adapted to mounting on automatic set-ups, bench, etc. Metallizing Engineering Co., Inc., 38-14 30 St., Long Island City 1, N. Y.

VARIABLE-FEED WICK OILER



THIS variable-feed wick oiler with removable wick retainer is described as suitable for equipment having solid bearings oiled from the top, where a measured quantity of filtered oil is desirable. Feed of oil is controlled by varying size of wick in tamper-proof base fitting. Greater feed variation can be obtained by using lighter or heavier oil. Available in four types: with or without sight-fitting; with or without feed shut-off; 1, 2, 4, and 8 oz. capacities in each type. Trico Fuse Mfg. Co., 2948 No. 5th St., Milwaukee

ANTISEPTIC LIQUID SOAP

NEW liquid soap, known as Antiseptic Septisol, containing CONTAINS G-11 hexachlorophene (G-11), is said to be useful for industrial

workers to combat the danger of secondary infection arising from exposure to abrasives, cutting oils, irritants, etc.; as an important aid in the prevention of pyogenic skin infections; and as a prophylactic for industrial nurses, food handlers, etc. Daily washing with the soap is said to be superior to lengthy hand washings with ordinary soap followed by germicidal rinses. Bulletin available. Vestal, Incorparated, 4963 Manchester, St. Louis 10,

ROLL-HANDLING DEVICE



POWER truck attachment features two steel arms of semi-circular contour that close on a heavy roll of paper and hold it securely while it is being picked up, transported, stacked or changed from vertical to horizontal position. It is also applicable to many other materials in roll form, including casks, drums, etc. Surfaces that come in contact with the roll are rubber padded. A 2000-lb roll of paper can be picked up vertically clasped by as little as 6 inches of the roller's end. Elwell-Parker Electric Co., Cleveland, O.

REMOVES PROTECTIVE COATINGS AND GREASES

SOLVENT emulsion cleaner known as Buxite eliminates the need for scraping protective coatings and greases from

equipment which is to be restored to service after being stored away. The grease is penetrated and loosened by the solvent and is then flushed off easily with water because of the emulsifying action. The cleaner has a high flash point and mild odor. A thin layer of the cleaner, left on metal, serves as a temporary protection against rust. The Penetone Company, Tenafly, N. J.

NON-SLIP MATERIAL



TYPE B "Safety-Walk", non-slip material for stairs, ramps, catwalks, building entrances and floors, has a pressuresensitive adhesive which enables it to be laid "as easily as cellophane tape", without requiring application experience. It consists of hard mineral grains surfacecoated on a toughened fabric, affording non-slip safety underfoot even when covered with water, mud, oil or grease. Adhesive is protected by a Holland Cloth liner which is pulled off prior to application. Minnesota Mining & Manufacturing Co., 900 Fauquier St., St. Paul 6, Minn.

(Please turn to page 154)



Youngstown Cold Finished Carbon and Alloy Steel Bars are now being produced in a wide range of sizes and shapes, supplied either in coils or straight lengths.

Drawn to meet standard specifications, these bars have the characteristics that make them ideal for high-speed screw machine operations--uniformity of composition, toughness and strength, close tolerances in dimension, and smoothness and brightness of finish.

You'll find a Youngstown bar stock to meet almost any requirements.

Tell our representative what you want and we will make every effort to serve you at once.

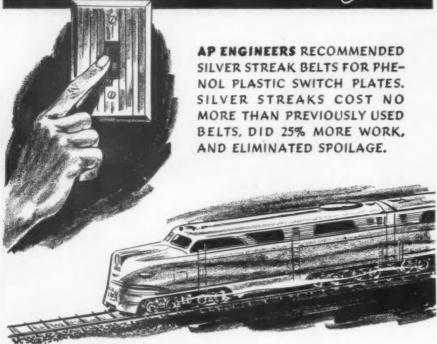


THE YOUNGSTOWN SHEET AND TUBE COMPANY

General Offices — Youngstown 1, Ohio

Manufacturers of Carbon, Alloy and Yoloy Steel Export Office-500 Fifth Avenue, New York COLD FINISHED CARBON AND ALLOY BARS - SHEETS - PLATES - WIRE - TIE PLATES AND SPIKES - ELECTROLYTIC TIN PLATE - COKE TIN PLATE - PIPE AND TUBULAR PRODUCTS - CONDUIT - BARS - RODS.

Switch to JEWEL ABRASIVES for lower-cost finishing!



THE STAINLESS STEEL IN THESE STREAMLINED TRAINS WAS PROBABLY POLISHED WITH ESPECIALLY DEVELOPED JEWEL SILICON CARBIDE PAPER BELTS...BELTS THAT CUT FASTER, LAST LONGER, BECAUSE THE ABRASIVE IS CEMENTED TO A STRONG PAPER BACKING WITH BONDITE...A POWERFUL, HEAT-RESISTING ADHESIVE.

FOR TRICKY COMBINATIONS

OF WOOD AND METAL, A PROMINENT GOLF CLUB MAN—UFACTURER HAS FOUND THAT NOTHING EQUALS HEAT—RESISTING BONDITE NEW PRO—CESS BELTS. LIKE ALL JEWEL BELTS, THEY HAVE AP'S EX—CLUSIVE, SMOOTH—RUNNING VELVET JOINT, THAT WILL NOT JUMP OR SCRATCH THE FINISH.



SO REMEMBER JEWEL WHEN YOU ORDER COATED ABRASIVES. THERE'S A JEWEL PRODUCT FOR EVERY POLISHING AND GRINDING NEED. PROPERLY USED JEWEL ABRASIVES WILL SPEED YOUR WORK, CUT YOUR COSTS!



SELF-ALIGNING FLANGED CARTRIDGES & PILLOW BLOCKS



NEW pillow block and flanged cartridge are described as having following advantages: spherically ground O.D. cuts mounting time because bearing aligns self on shaft; highest quality ball bearing alloy steel races and chrome alloy steel balls; oil resistant seal of labyrinth design provides dirt-free lubrication chamber; bearing is prelubricated and can be placed directly in service; solid, one-piece cast iron housing. Both are available for shafts ½" to 1¼" diameter. Boston Gear Works, Quincy 71, Mass.

COMBINATION BLAST GUN



ENPRO combination blast gun is an air-operated, portable "abrading" or "solvent" gun that is said to improve and simplify surfacing, production, cleaning and finishing in automotive and industrial fields. The gun has no shaft to break, no wheels to dress and no motors to burn out. It is connected to any air line and is equipped for sand blast operations or spraying solvents and liquids. Light in weight, the gun is useful in reaching inaccessible places. It leaves no buffing marks, grooves or ridges, scuffed, gouged or uneven surfaces. Engineered Products, Inc., 1224 Speer Blvd., Denver, Colo.

PORTABLE POWER PIPE THREADER



NO. 165 portable power pipe threader is operated by any ½" standard electric drill. Threads 1", 1¼", 1½" or 2" pipe with one set of high speed steel chasers. Weighs only 26 lbs. so that one man can carry it from job to job with ease. Threader is furnished complete with one set of high speed steel chasers and drive adapter. Armstrong Bros. Tool Co., 5200 W. Armstrong Ave., Chicago 30, Ill.

(Please turn to page 156)



Pattern for modern lighting -and more profits!

Easy, comfortable seeing in this assembly shop results in faster, more accurate work, improved employee morale. Fluorescent fixtures arranged in a grid pattern, with two 40-watt General Electric fluorescent lamps in each fixture, give 80 footcandles of illumination on the work areas, cut shadows to a minimum.

Modern, improved lighting like this, made possible with General Electric fluorescent lamps, is a sound investment that pays off in increased production and profits.

See your General Electric lamp supplier today. Always specify G-E fluorescent lamps for all replacements or new installations. Quality is assured by more than 480 tests and inspections!

You can put your confidence in-

GENERAL BELECTRIC

Whatever Lamps you need

FLUORESCENT



FILAMENT
All types and wattages for every lighting need.



INDICATOR
Glow and filament types, for instrument panels, etc.



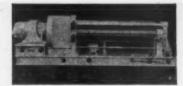
REFLECTOR
Spot and flood types.
Self-contained reflector.



INFRA-RED
For drying, baking, curing and other heat processes.

-G-E makes ém all





THIS heavy duty metal roll of the 3 roll initial type is for production of pipe, well casing, and general metal rolling. It is capable of rolling heavy gauge and alloy steels and is designed for constant use high production. Frame of the machine is all steel. Rolls are forged 4140 alloy steel. Rear bearing on top roll is available either with manual operation or automatic air cyinder operation. Sizes and lengths manufactured to suit requirements. Valley Foundry & Machine Works, Inc., Fresno, Calif.

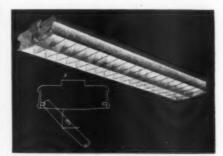
RADIAL SAW

"900" Series radial saw for cutting wood, plastic and similar materials features: "Centr-Pivot" offset yoke that permits all cuts to be made in the convenient table area; 31%" capacity with 9" blade;



geared motor with $2\frac{1}{2}$ times overload capacity; 24'' crosscut travel. The saw rips to center of 48'' panel. Holding design incorporates taper latch indexing and locks that are easy to reach and operate. The laminated hard maple table is 46'' x 24''. Literature available. Walker-Turner Division, Kearney & Trecker Corp., Plainfield, N. J.

RADIANT FLUORESCENT



WHEN illuminated, side and spill lighting give the Guthlite, Jr. a radiant glow. Luminous effect is accomplished without glass or plastic panels, eliminating problem of breakage or warpage. Diffuse aluminum louvres provide comfortable shielding and a pleasant low brightness at normal angle of view. Illustration shows easy-to-open hinge that permits louvres to be hinged to either side, or completely removed for easy lamp and starter changes Edwin F. Guth Co., St. Louis 3, Mo.

(Please turn to page 158)



Speed Sweep brushes have a steel back which is the basis of unique design for faster, easier, better sweeping. Block is ½ usual size for easier handling. Tufts are longer and more compact, providing "spring and snap" action. Handle is instantly adjustable to height of sweeper—reduces fatigue and strain. Speed Sweep brushes are sturdy—they contain highest grade materials and are constructed for long life. Speed Sweep brushes have been proved by so many firms and under such varying conditions that they are unconditionally guaranteed to meet your needs. Mail coupon today for complete information about sizes, styles and prices.

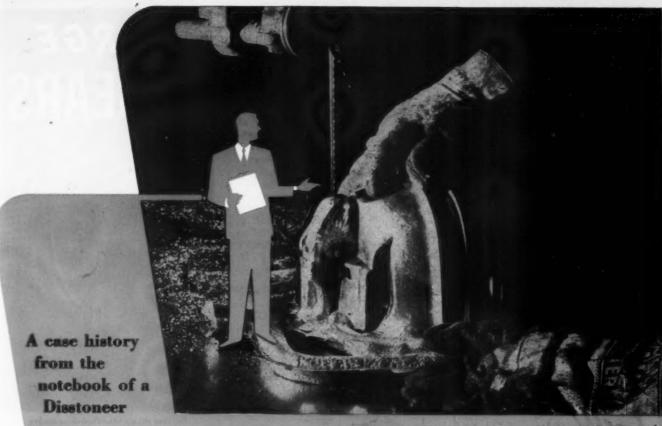
MILWAUKEE DUSTLESS BRUSH CO. 530 North 22nd St., Milwaukee 3, Wisconsin

Please send complete information about Speed Sweep Brush	Please	send	complete	information	about	Speed	Sweep	Brushes
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Name

Street Address_____

City, State____



Disson Hard Edge Flexible Back Band Saw (Buttress Took Pattern)
cutting aluminum allay castings in plant of a California foundry.

How a DISSTONEER helped save 2½ to 3 hours per day on a metal-cutting band saw job . . .

He may be able to do as much for you

This foundry was cutting aluminum alloy castings, used for the cap ends of cylinder type vacuum cleaners. The pieces cut are 8" in circumference and ½" thick (one gate runs 4" high and 1" thick).

A buttress tooth band saw blade, $18' \times \frac{1}{2}'' \times 4T$, was being used. Blades were not clearing on the contour cutting, thus causing them to lead off and spoil castings. Also, blades were wearing out too fast. The company was getting little more than 15 castings per blade.

The Disstoneer recommended a Disston Buttress Tooth Pattern Flexback blade, 18' x 1/8" x 4T... only a slight change, but what a difference in results! The number of castings per blade was increased to 50. But, of even greater importance than saving blade-costs and reducing down time, production was speeded up to a point where 21/2 to 3 bours per day were saved.

After the trouble was eliminated, the Disstoneer was told, "I knew you could help me, that's why I called you. I'm very well pleased with the change, and quite happy."

Like this foundry, and hundreds of other manufacturers who have profited from Disstoneer service, you, too, will be "very well pleased" with the savings he can make for you. He will be glad to call at your convenience and without charge or obligation.

Write for full particulars, or get in touch with your local Disston Distributor

DISSTON BUTTRESS TOOTH PATTERN HARD EDGE FLEXIBLE BACK BAND SAW

Designed for machines operating at speeds of 3000 fpm or over. Wide tooth spacing allows faster feed as wider gullet provides greater chip clearance. Recommended for magnesium and aluminum alloys.

WHEN YOU BUY A
DISSTON PRODUCT YOU





HENRY DISSTON & SONS, INC., 433 Tacony, Philadelphia 35, Pa., U. S. A.

Canadian Factory: Toronto 3, Ont.



about

Illinois Coil Spring Company, Chicago, makes them right—and at reasonable cost. Regarded by an ever increasing number of manufacturers as the ideal source for high grade mechanical springs, all types and sizes-also clips, small stampings and wire forms. We'll design them for you or make them exactly to your specifications. Plant is large enough to handle big orders smoothly, compact enough to give prompt service on small orders and experimental work. Our steady growth is evidence



that policy, price and production are RIGHT So why not call us in on that spring job?

Sent	0	93	
Sent	5.70	Rea	11051

Interesting new bulletin "BRIEF GUII ERS," tells in plain language what a go	
to get it without excessive cost.	(P)
MR	(*/

(Mail to 2100 N. Major Ave., Chicage, 39, III.)

NEW IMPACT SOCKETS



ADDITIONS to the Williams impact "Supersocket" line have increased the number of sockets in the various styles to over 150. "Supersockets" are adaptable to all socket locking methods used on various types and makes of

power and impact wrenches. They are made of extra tough alloy steel, specially treated to withstand constant shock and pounding. Available in 7 square drive sizes with hex openings from 3/16" to 31/2" and 8-point openings from 5/16" to 11/4" in regular and belt clearance lengths. Booklet A-100 available. J. H. Williams & Co., 400 Vulcan St., Buffalo 7, N. Y.

LIGHTING SOCKET PROTECTOR



"ATUSCO-LOC" socket protector may be used on almost any medium base brass shell socket. The assembly consists of a solid die-cast socket cap with a minimum wall thickness of 3/64", a 16-gauge steel ring, and three brass screws. Easily attached, it is said to cut replacement costs of sockets and wiring, reduce danger of blown fuses, electrical shock, and fire caused by twisted wires and broken splices. Available in 1/8" or 3/8" IP thread as a separate assembly or complete with pull chain, key or push through socket. Adjustable Fixture Company, 104-114 East Mason St., Milwaukee 2, Wis.

LIFT TRUCK BATTERY CHARGER



CHARGER for servicing batteries of motorized hand lift trucks, designated the "Chargette", weighs only 115 lbs. in its smallest rating, and occupies a floor area of 105%" by 145%". Charging

current begins automatically at proper value and is controlled throughout the charge at rates prescribed by battery manufacturer. Every part of the charge is readily accessible for inspection and maintenance. Made in seven ratings to service various types of batteries. The Electric Products Co., 1725 Clarkstone Rd., Cleveland 12, O.

(Please turn to page 160)

LARGE CUT GEARS

Cutting three identical spur gears simultaneously at Simonds Gear.

Cut Gears for Industrial Needs!

For special gears in larger sizes-exact duplicate gears for replacements-for every heavy-duty industrial gear application-look to SIMONDS GEAR where specialty gears for heavy industry have been a custom service for more than 50 years. Within easy shipping distance of many heavy industry plants-with a personalized service designed to meet your most exacting specifications—SIMONDS GEAR provides an unusually prompt and efficient service on even the most unusual gear requirements. Sizes range up to 145" dia. in all popular gear-making materials. Send your inquiry today and get acquainted with SIMONDS GEAR

SPUR GEARS

BEVEL GEARS . MITRE GEARS WORMS . WORM GEARS RACKS . **PINIONS**



You get 6 big advantages with New LTG

Flex-a-Power...

The only unusually rugged plug-in or trolley busway in 2, 3 or 4 pole construction in

one compact housing.

Pre-fabricated LTG FLEX-A-POWER — rated 50 amps — 250 v, AC or DC — supplies power for fluorescent lights and power tools. It provides both trolley power take-off and a continuous outlet — you can tap at any point . . . ideal for industrial plants, offices, stores, arenas, work shops and garages. Here are more new features:

- **EASY TO INSTALL** simplified hanging and joining methods speed up installation.
- 2 IT'S ECONOMICAL two or more circuits can be run in one housing controlled separately.
- PERMITS BALANCED LOADS plugs or trolleys are polarized which provides a convenient means of balancing loads.
- 11'S REALLY RUGGED rigid construction of housing itself prevents sagging only 2 hangers needed for each 10 ft. section.
- MORE FLEXIBILITY standard fittings such as elbows and radius sections permit economical custom installations easy to disassemble and relocate.
- GREATER CONVENIENCE trolley with silver alloy contacts may be inserted or removed at any point along the run no "drop-out" section required.

FOR MORE INFORMATION, write for circular TEC-3, THE TRUMBULL ELECTRIC MAN-UFACTURING COMPANY, Plainville, Conn.

Men Who Observe the Best Electrical Practice Make It a Practice to Use

TRUMBULL T ELECTRIC



TRUMBULL'S TRAINLOAD OF NEW PRODUCTS



You Can't Beat the Facts!

New improved SOL-SPEEDI-DRI gives you more volume per pound.

New improved SOL-SPEEDI-DRI covers more floor area per pound.

New improved SOL-SPEEDI-DRI absorbs more liquids per pound.

YES, the new improved Sol-Speedi-Dri is more economical to use, because you get more bulk, more coverage, more absorption per pound.



Safety & Maintenance Co., Inc., 1 Wall Street, New York 5, N.Y.

Warehouse stacks maintained in principal cities of the United States and Canada.



HACK SAW FRAMES



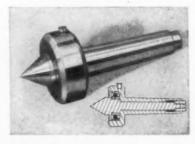
FOUR new hack saw frames, numbered 338, 348, 358, and 368 (illustrated), are sturdily made of polished nickel-plated steel, with plastic handles designed for comfortable grip and easy handling. They may be used with all standard blade sizes and are adjustable to four cutting positions—teeth facing right or left, up or down. Henry Disston & Sons, Inc., Philadelphia 35, Pa.

GENERAL MACHINE LIGHTS



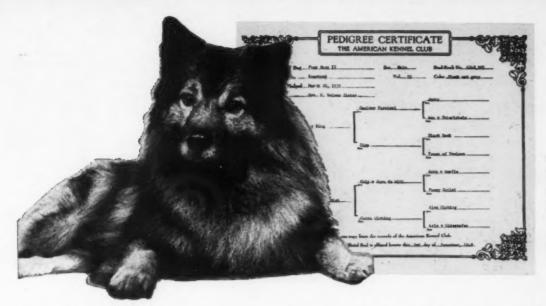
ADJUSTABLE general machine lights for high intensity lighting of precision work areas come in six standard models. Extension tube, 10" long, and flexible arm, 15" long, are standard. Bases are available in three types: for side mounting, flat mounting, and for side mounting without use of extension tube. There are two types of sockets and four types of reflectors, all aluminum finish inside and designed to eliminate glare. Easily mounted on any machine. Folder No. 74 available. Vinco Mfg. Company, 105 Brayton St., Buffalo 13, N. Y.

LIVE CENTER FOR LATHES



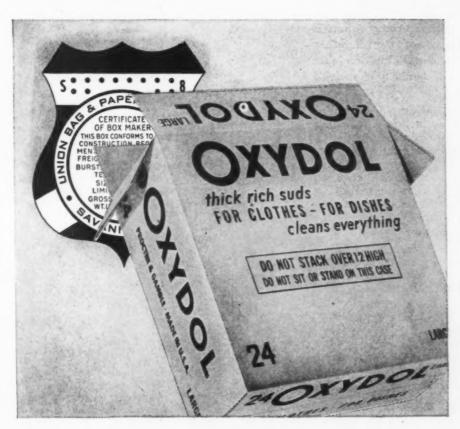
PRECISION ball bearing live center is said to provide the strength and rigidity required for heavy roughing cuts, and the accuracy for fine work and high speeds. Revolving center is made from electric furnace tool steel heat treated to a hardness of 61 to 65 Rockwell C. Center point shaft extends through the taper shank and is supported by bearings at both ends. All parts are interchangeable and replaceable. Available in two sizes; the smaller having a No. 2 Morse Taper shank and the larger a No. 3 Morse Taper shank. South Bend Lathe Works, 309 East Madison St., South Bend, Ind.

(Please turn to page 162)



THE KEESHOND comes to us from the Arctic, via Holland where he is very popular. A close relation of the Chow and the Eskimo Dog, many consider him more beautiful than either, with his heavy coat of silvery gray with black tips.

Experienced Buyers look at the Pedigree—Buyers of Boxes, too!



A BOX with a pedigree has outstanding reputation and resources behind it. That's why—

Procter & Gamble, makers of the famous Oxydol soap powder, trust their products to Union corrugated 100% Kraft boxes.

Experience of 75 years undisputed leadership in paper packaging goes into Union boxes. Every step in making, from tree to finished box, is quality-controlled by one management in America's largest integrated pulp-to-container plant.

Vast forest resources, four modern box plants, and five of the nine largest paper machines in the world are your guarantee of consistent quality, consistent service and fair price, today and in the future.

That's the pedigree of Union boxes. That's why, every month, more makers of famous brand products are using them.

UNION Corrugated Containers UNION BAG & Paper Corporation

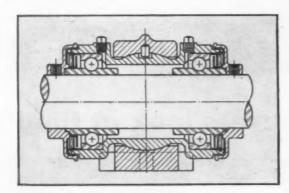
Principal Offices: WOOLWORTH BLDG., NEW YORK 7, N.Y.

Corrugated Container Plants: SAVANNAH, GEORGIA . CHICAGO, ILLINOIS . TRENTON, NEW JERSEY



with BALL BEARINGS

— the small extra first cost of test samples pays off in assurance of efficiency and durability of the finished mechanism.



with TRACING CLOTH . . .

The small extra first cost of Arkwright Tracing Cloth, over that of tracing paper, repays many times over in the efficiency and durability of valuable drawings.

Through continued research and development plus skilled manufacturing processes, Arkwright Tracing Cloths meet every requirement of exacting draftsmanship. You'll find no pinholes, stains or other imperfections to detract from drawing quality—nor smudging or feathering after repeated erasures. Most of all, you'll have highly transparent, long lasting usefulness that perishable tracing paper cannever match.

For every drawing worth keeping for future use—specify permanent Arkwright Tracing Cloth. Send now for generous working samples. Sold by leading drawing material dealers everywhere. Arkwright Finishing Company, Providence, R. I.

The Big Six Reasons Why Arkwright Tracing Cloths Excel

- 1. Erasures re-ink without feathering.
- 2. Prints are always sharp and clean.
- 3. Tracings never discolor or go brittle.
- 4. No surface oils, soaps or waxes to dry out.
- 5. No pinholes or thick threads.
- Mechanical processing creates permanent transparency.



ARKWRIGHT TRACING CLOTHS AMERICA'S STANDARD FOR OVER 25 YEARS

MOVABLE TABLE

TOTE'EM is a three-tiered movable table made of 16 and 18 gauge sheet steel, suitable for moving tools, supplies etc., or for stock room use. Shelves are 16" x 22", and have a ½"



protective flange. There are 12½" between each shelf. Top shelf can be reversed to form a smooth table top without the flange Table has a convenient handle for pushing, and four swivel-type, 3" rubber-tired casters made for heavy duty. Finished with a deep green hard finish baked enamel. Alhambra Products Co., 822 Date St., Alhambra, Calif.

HIGH-SPEED ELEVATOR BUCKET



ILLUSTRATION shows front and back views of "HS" high-speed elevator bucket which is said to embody all the essential basic principles for high speed operation to attain maximum capacities in handling free-flowing materials which are not excessively abrasive. Featured are unequaled capacity, durability, low operating cost, and exceptional strength with light weight. Buckets may be mounted on elevator belt at intervals or continuously, depending on the capacities required. Book No. 2299 available. Link-Belt Company, 307 N. Michigan Ave., Chicago 1, Ill.

JET PUMP MOTORS

ILLUSTRATION shows ½ hp. jet pump motor with keyed shaft, one of a new line designed for automatic starting and stopping. The motors have the starting and accelerating torque and speed charac-



teristics especially suited to jet pump service. The new capacitor start single phase jet pump motors are built to NEMA standards of performance and dimensions. Three phases and direct current motors have identical mounting dimensions, making them interchangeable. Century Electric Company, 1805 Pine St., St. Louis 3, Mo.

(Please turn to page 168)

Using

copper stain ess

in your product?

niekel mnnel

where you need only the

solid surface

that's all you need to buy!

Suveneer CLAD METALS

If you don't use the "inside" of the gauge thickness in your applications for expensive-metals strip, have the core of plain steel—and save money! With SuVeneer Clad Metals, you get the dense, solid surface of stainless, copper, nickel or monel, bonded inseparably to low carbon strip steel on one or both sides. You get the performance you need, at lower cost. • Write for the detailed facts.

Superior Steel

CORPORATION

CARNEGIE, PENNSYLVANIA

ELWELL-PARKERS!



Saves \$20.65 For Each Car Unloaded

This direct labor saving was made when handling by an E-P truck replaced manual unloading of sheet metal. Master unit loads weighing 2,500 lbs. are now high tiered, with greater safety, and in less time.



Saves \$64 Daily By Using "AIR RIGHTS"

Profitable use of all overhead space is achieved by warehouse owner whose E-P trucks high tier palletized barrels. These hazardous-tohandle units are safely stored in this manner. Savings—\$64 in 8 hours.



Saves \$41 Per Car By Palletization

Unloading boxcar, 1 bag at a time, was slow, expensive and wasteful due to broken bags. After supplier palletized, an E-P truck unloaded cars so quickly and economically that it soon repaid its cost.

Parkers have been making these economies for years—today the savings are even greater as compared to less efficient and less dependable methods. The Elwell-Parker Electric Company, 4519 St. Clair Avenue, Cleveland 3, Ohio.



FREE BOOKLET on Scientific Materials Handling.

Ask for a copy of "Industrial Logistics"

POWER INDUSTRIAL TRUCKS
Established 1893





18-inch standard weight Tube-Turn welding tee and pipe laid out preparatory to assembly for hydrostatic pressure test.



Welder completing last bead in assembly. Fitting and pipe now form homogeneous, leakproof unit.



Assembly is hung in pit, massively lined with concrete. During test top grating is closed and held down by a barricade of sandbags.



Final result after hydrostatic pressure test. The straight pipe burst first, and the tee is undamaged.



Strength through Design in Tube-Turn welding fittings

The pipe burst first!

Take an 18-inch standard weight welding tee. Take three corresponding lengths of pipe. Weld tee and pipe together. Cap the ends. Lower the assembly into a pit. Then apply hydrostatic pressure—much more than the assembly is supposed to take!

Something has to give! According to the accepted beliefs it should be the tee. But not in the case of the test pictured here. The Tube-Turn "barrel-shaped" tee was used—and the pipe burst, well before the tee was affected! Throughout numerous tests, this new type of tee has withstood at least 25 per cent more pressure than required by the formula given in ASA B16.9.

The superior strength of the tee was achieved without running up extra weight and cost, by carefully planned improvements in shape (based on the sphere, nature's



strongest form for internal pressure), and by a carefully engineered distribution of metal.

This is a typical example of strength through design in Tube-Turn welding fittings, and another good reason why leading piping engineers specify Tube-Turn equipped, welded piping.

TUBE TURNS, INC.

246 East Broadway, Dept. F, Louisville 1, Kentucky

District Offices at New York, Philadelphia, Pittsburgh, Chicago, Houston, Tulsa, San Francisco, Los Angeles

General Electric announces an important



MOTOR



IF YOU HAVE Tri-Clad motors in your plant, your records will prove our statement: "you can't beat Tri-Clad extra protection." On 2 million motors, the Tri-Clad nameplate stands for extra protection against industrial hazards. NOW it means even more. For Tri-Clad motors are now backed by an exchange service designed specifically to cut down-time and eliminate the need for extensive motor-repair facilities. The Tri-Clad Motor Exchange Plan is important news to all industry.



GENERAL ELECTRIC now maintains 16 motor exchange centers in principal industrial areas across the country. Each center is prepared to make an immediate exchange of Tri-Clad motors—popular types, open (dripproof) 4-pole, 1 to 5 horsepower—during the first five years of service. Exchange motors have been reconditioned and tested under actual factory conditions. Each carries a new-motor warranty. The cost ranges from nothing for motors in service one year or less to a nominal fee based on the age of your motor.

Look for this EXTRA on the motor you buy

CUT the cost of motor maintenance GET extra down-time protection REDUCE "spare-motor" inventories

GENERAL



ELECTRIC

new service to industry...

EXCHANGE PLAN

for popular sizes, 1 to 5 hp



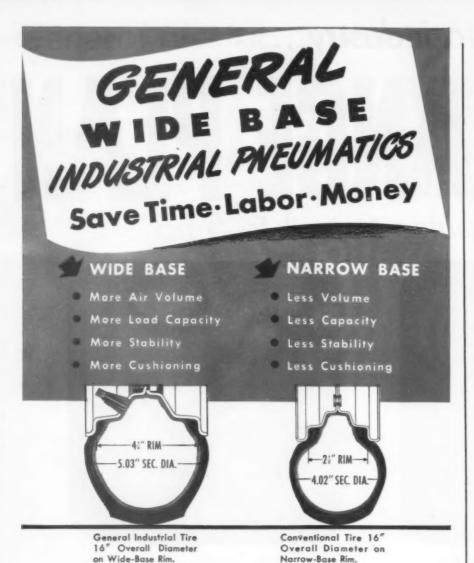
YOUR MACHINERY BUILDER can now give you added assurance of operating continuity in the machinery he equips with Tri-Clad motors. If you look to him or his agents for motor repairs or replacements he'll be better prepared than ever to give you fast, one-call motor exchange service—a welcome extension of the General Electric fractional-hp motor exchange service to integral-hp open (dripproof) motors.



YOUR DEALER, distributor or other motor supplier will now carry stocks of factory reconditioned G-E Tri-Clad motors in all widely used types and ratings. If a motor goes out of action for any reason whatsoever, your motor supplier can replace it in an over-the-counter transaction that's as simple as ABC. In a matter of hours (or less!), a good-as-new motor is in your plant ready to go. If your supplier is not operating under the Exchange Plan, please let us have his name and address.



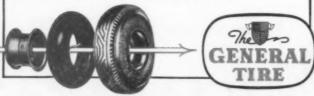
General Electric Company, Section B756-1	
Apparatus Dept., Schenectady 5, N.Y.	
YES! I want the full story on your new Tri-C	Clac
Motor Exchange Plan. Please send me Bulletin	No
GEA-5189 For Motor Users	
☐ GEA-5180 For Machinery Builders	
Name	
Company	*****
Street	
CityState	



For real savings...do as industries everywhere have done...standardize on wide-base General Industrial Pouematics.

Heavier loads move easier, faster. Greater stability, less sway, easier steering, longer wear, lower worker fatigue. Big savings on floors and floor covering. Extra cushioning protects fragile loads and delicate mobile equipment.

Two, four and six ply tires, sizes 8" to 22"
O. D. available in complete assemblies of tire, tube and heavy-duty wheels. Ready for immediate installation on your equipment.



SEND FOR NEW CATALOG

Dept. 7, THE GENERAL TIRE & RUBBER CO., Akron, O.

BAND SAW WITH SPIRAL BLADE



INTRICATE cuts can be made cleanly and easily in such materials as steel, plastic, and foam rubber with the new band saw with spiral blade shown above. The blade presents a 360° cutting edge that cuts smoothly in any direction. Infinite speeds planetary transmission provides a saw speed range of from 70 fpm (for steel and other tough metals), to 5,000 fpm (for wood, aluminum, and other light materials). Operator can cut any pattern without turning the work. Tyler Manufacturing Co., Los Angeles 45, Calif.

PORTABLE SAFETY TRANSFORMER



SAF-T-LITE is a portable safety transformer that safeguards workers in damp surroundings from the possibility of fatal electric shock while working with the conventional type of 110-volt extension trouble lamp. The unit weighs 4½ lbs. and reduces a 110 volt circuit to only 6 volts, which is said to be harmless. When connected to an outlet, it can be left on floor or table or can be hung from any wall fixture by a convenient hook. Available complete with lamp and cord, or just as transformer with insulated leads. Etraco Manufacturing Co., Inc., Woods Church Rd., Flemington, N. J.

FLEXIBLE BANDSAW BLADE



TEETH of this Eclipse hardedge woodcutting bandsaw blade are said to stay sharp at least five times as long as comparable blades. Each tooth is sharpened to a higher degree, precision-set to within 1/10,000", and then highly tempered in set position. The saw has tooth rake.

(Please turn to page 170)

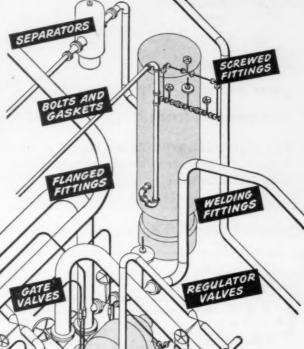
For every fluid...or working condition CRANE piping meets the need

For This Boiler Room Piping, for example... as for any pressure or temperature condition... Crane offers an unequalled selection of valves, fittings, pipe and accessories. One catalog lists the entire line. One order to Crane results in fastest possible service. For Crane serves you through a network of well-stocked cooperating Branches and Wholesalers, also having direct access to large factory stocks.

You can depend on this Single Source of Supply to speed and simplify every piping procedure, from design to erection to maintenance of systems. Placing Complete Responsibility on Crane for materials helps you to get better installations, avoids needless delays. Relying on the High Quality that is Crane Quality assures long and dependable performance from every item in your piping systems.

CRANE CO., 836 S. Michigan Ave., Chicago 5, Ill. Branches and Wholesalers Serving All Industrial Areas

SOURCE OF SUPPLY
RESPONSIBILITY
STANDARD OF QUALITY



FLANGES CHECK VALVES

FOR STEAM, WATER, AIR, GAS and other relatively non-lubricating services, Crane recommends Union or Bolted Bonnet 600-pound steel Gate Valves. Stainless to Exelloy seating gives them superior resistance to wear, corrosion and temperature effects. Rated for steam working pressures up to 850 deg. F. Flanged, screwed, or welding ends. In sizes 2 in. and smaller. Send for folder AD-1741.

EVERYTHING FROM . . .

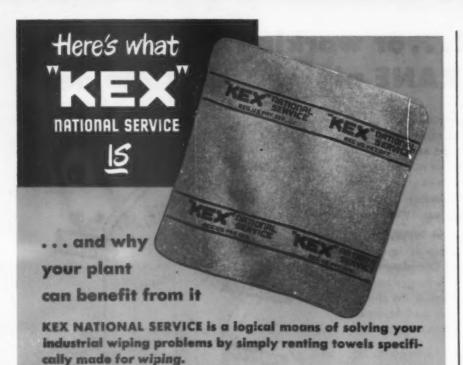
VALVES • FITTINGS
PIPE • PLUMBING

AND HEATING

CRANE

FOR EVERY PIPING SYSTEM

CRANE



HERE'S HOW "KEX" NATIONAL SERVICE WORKS!



1

KEX NATIONAL SERVICE is as near as your telephone. 2

KEX INDUSTRIAL WIPING TOWELS are delivered to you in the quantities you want as you need them.





3

They are tied in neat bundles for easy storage, convenient handling and control of distribution. A

KEX TOWELS are soft woven cotton—no abrasives to mar delicate surfaces—bound edges for safety—uniform in size—super-absorbent and clean.





5

Service is automatic — Pick-up of used towels and delivery of fresh ones are on a clock-work schedule that you make.

Manufacturers in every type of industry who have a wiping problem have found KEX NATIONAL SERVICE the efficient, economical way of solving it.

Look for this symbol in your local Classified Telephone Book. It identifies your nearest KEX distributor. Or write for details to KEX NATIONAL SERVICE, 295 Fifth Avenue, New York 16, N.Y.

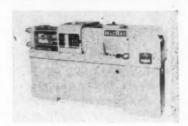


VIKEX NATIONAL SERVICE

(Continued from page 168)

Since only the teeth and not the backing of the blade are tempered, the breakage factor is greatly reduced. The blade is so flexible it can be tied in a knot, as shown. Blade may not be resharpened. When dull, it may be used on soft metals, etc. Available in ½", ½" and½" widths and all lengths. Alwood Co., 2035 W. Charleston St., Chicago 47, Ill.

INJECTION MOLDING MACHINE



MODEL 3 injection molding machine for use in the plastic equipment field is rated at 3 oz. capacity. It is said to use the simplest arrangement of hydraulic, electric and mechanical units, and to combine rugged construction and compactness with quiet operation and accessibility. Molds 12" x 15" with a 12" maximum thickness can be easily set up in the machine. Heating cylinder is of straight bore design, and is fitted with a special design spreader. Two half bands of electrical resistance, totaling 3400 watts, provide the heat necessary for plasticizing 25 lbs. of material per hour. MacRay Engineering Co., 6611 Euclid Ave., Cleveland 3. O.

EXPLOSION-PROOF SNAP SWITCH



ESCO type "P" quick-made, quick-break, rotary snap switches are available in explosion-proof, dust-tight, vaportight, weatherproof housings for hazardous locations. Assembly may be surface mounted with switch handle on dome, as shown, or with switch shaft projecting through base for panel mounting. Standard conduit connections are provided. Style 30H is rated at 30 amperes, 500 volts a-c, 25% volts d-c. Style 10H, for surface mounting only, is a 10-ampere-125 volt a-c switch. Electro Switch Corp., 52 Chauncy St., Boston 11, Mass.

SEE PURCHASING'S CLASSIFIED SECTION PAGE 334

In this business, every molekill is a mountain

In modern surgery no seemingly insignificant detail is overlooked or disregarded. This is one reason why surgery today is so successful and the percentage of recovery so high.

Surgical instruments, for example, must be made of the finest steel—steel that meets the most exacting requirements in strength, flexibility, uniformity, and ability to take and hold the keenest of cutting edges. Only special, precisely processed steel will do.

That's why many leading surgical instrument manufacturers turn repeatedly to our Athenia Steel Division—because here at Athenia are men who long ago acquired special skills in the fine steel mills of Sweden . . . men, who with their descendants and fellow workers, now take pride in producing steel of a quality unsurpassed anywhere else in the world.

The painstaking care that goes into such steel typifies the uncompromising manufacturing policy long practised by the makers of fine surgical instruments. For it is their responsibility, which we constantly share, to put only perfect, completely reliable instruments into the hands of America's surgeons, the most advanced, most skillful on earth.



DIVISIONS OF NATIONAL-STANDARD CO.

ATHENIA STEEL, Clifton, N. J. Flat, High Carbon, Cold Rolled Spring Steel NATIONAL-STANDARD, Niles, Mich. . . Tire Wire, Fabricated Braids and Tape WAGNER LITHO MACHINERY, Jersey City, N. J., Lithographing and Special Machinery WORCESTER WIRE WORKS, Worcester, Mass. . . Round Steel Wire, Small Sizes



on your payroll ...at no extra cost!

Your Chase Salesman is a thoroughly trained bag specialist. He knows materials, design, construction, and the most modern packaging techniques.

And, he also knows how to best apply this information to your business... in terms of good looks, efficiency, and economy!

He is supported by a company with plants strategically located throughout America—to serve you quicker, better. His recommendations are backed by a reserve of experience that dates back to 1847.

Write today—he'll be glad to help provide a better container for your products.



CHASE BAG CO.

GENERAL SALES OFFICES

309 WEST JACKSON BLVD., CHICAGO 6, ILL.

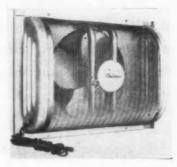
BOISE BUFFALO CHARRIN FALLS, O. CLEVELAND CROSSET, ARK.
DALLAS O DENVER O DETROIT O GOSHEN, IND. O HARLINGEN, TEXAS
HUTCHINSON, KAN. & KANSAS CITY OLDS ANGELES MEMPHIS & MILWAUKEE O MINNEAPOLIS O NEW ORLEANS O NEW YORK O KILAHOMA
CITY O ORLAHOO, FLA. O PHILADEL PHIA O PITTSBURGH O PORTLAND,
ORE. O REIDSVHLE, N. C. O ST. LOUIS O SALT LAKE CITY OTOLED

MEDIUM DUTY SANDER



THIS vertical sander, a medium-duty model weighing 8 lbs. 7 oz. and having an overall height of 7", is said to be suited for precision work because of its ease of handling. Also designed for use as a grinder with cup-type, counterbored center wheels and cup wire brushes. Available in free speeds of 4500, 5500, 6000, 7200 and 8500 rpm. Stream-Power governor assures constant speed under load. Buckeye Tools Corp., Dayton 1, O.

PANEL TYPE WINDOW FAN



ADJUSTABLE panel type window fan is portable, has direct drive, and is equipped with extension cord and threespeed switch. Finished in baked enamel. Panels fit window openings from 25" to 36". The 16" fan delivers 1550 cfm and the 20" delivers 2100 cfm. Both fans are equipped with a 1/15 hp motor. Literature available. Chelsea Fan & Blower Co., Inc., 1205 Grove St., Irvington 11, N. J.

HYDRAULIC PRESS

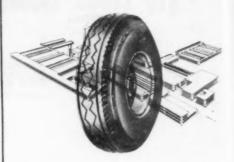


STRAIGHTENING, forming, broaching, forging and assembling operations are all within the range of work handled by this hydraulic metal working press. Sensitive finger-tip control is accom-

(Please turn to page 174)

SAGINAW

SERVES ALL INDUSTRY



AT NEW LOW COST

Check Saginaw before you buy! Designed for both economical materials handling and low cost improvement in product efficiency, Saginaw wheels, casters and conveyor parts are available in a complete range of sizes, materials and specifications to meet every individual job requirement.

PNEUMATIC AND FORMED STEEL WHEELS





PNEUMATIC AND FORMED STEEL CASTERS





CONVEYOR PARTS





Free! Illustrated Buying Guide of the entire Saginaw line! Write for yours Today!

SAGINAW PRODUCTS CORP.
105 RIVER - SAGINAW, MICHIGAN



Permanent Mold Gray Iron Castings for HYDRAULIC APPLICATIONS

- Free machinability
- Dense, non-porous structure
- Freedom from leakage under pressure
- Machines to high, mirror-like finish
- Properly annealed; no growth or distortion after machining.

Eaton Foundry Division engineers will be glad to discuss the application of Eaton Permanent Mold Gray Iron Castings to your product. Send for the illustrated booklet, "A Quick Picture of the Eaton Permanent Mold Process for Producing Gray Iron Castings."



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CLEVELAND, OHIO

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EATON PRODUCTS: SODIUM COOLED, POPPET, AND FREE VALVES . TAPPETS . HYDRAULIC VALVE LIFTERS . VALVE SEAT INSERTS . ROTOR PUMPS . MOTOR TRUCK AXLES . PERMANENT MOLD GRAY IRON CASTINGS . HEATER-DEFROSTER UNITS . SNAP RINGS . SPRINGTITES SPRING WASHERS . COLD DRAWN STEEL . STAMPINGS . LEAF AND COIL SPRINGS . DYNAMATIC DRIVES, BRAKES, DYNAMOMETERS



Fluorescent and Incandescent Lamps

are distributed through the same efficient, low cost channels as your other plant necessities — your local electrical or industrial supply house.

Your local distributor is in business to provide you with prompt, intelligent service. He offers CHAMPION Lamps because he knows you depend on him to provide supplies of high quality, long service and low cost.

Champion's trained lighting experts in the field are at all times available to help you make the most of lamps and lighting.

To get good lamps and good service, buy from your regular supply house and specify *Champion's*.



(Continued from page 172)

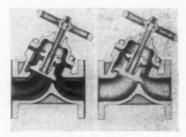
plished through Niagara Hydro-Touch. Speed of the ram approach is proportional to initial movement of the lever. Area of bed is 30" by 240". Maximum capacity of 135 tons can be exerted at any point in the 33" of ram travel. Catalog available. Niagara Machine & Tool Works, Buffalo 11, N. Y.

CORROSION-RESISTANT COATING



PLASTIC coating, known as CycLon, Series NPC, is described as an inexpensive, easily applied, high solids synthetic paint for protecting metals, wood and ceramic surfaces against chemical attack by corrosive fumes, condensates, spillage, etc. It air dries quickly by solvent evaporation to an adhesive, hard wearing, flexible glossy coating without the necessity of priming the surface being coated. The coating is unaffected by all alkalies as well as by their salts and most mineral acids. Munray Products, Inc., 12400 Crossburn Avenue, Cleveland 11, O.

DIAPHRAGM VALVE



LINE of diaphragm valves utilizes a new design principle that limits the diaphragm function to sealing the bonnet only, and is said to increase the life of the diaphragm many times over. Separate seating member, giving positive control of flow independently of the diaphragm reduces the flexing to which the diaphragm is subjected and completely eliminates diaphragm crushing action. Other features: shut-off flow is positive at all times; easier operation; quicker closing; Y-pattern body design gives greater flow capacity. Two types available—one plain iron and the other neoprene lined and coated. Crane Co., 836 S. Michigan Ave., Chicago 5, Ill.

(Please turn to page 176)

about last winter's fuel bills?

You're probably getting more "heat" out of last winter's fuel bills than you got all winter out of the fuel . . . if your plant had one of those old-fashioned systems that banks the heat uselessly up against the ceiling. You paid for heat, but you didn't get it down at the working level.

Now is the time to do something about fuel savings next winter . . . by pushing the heat down where you need it, with Thermolier Unit Heaters. It's wise to do it right now because you can get Thermoliers and the other materials easily at this season. Skilled labor has the time to do the job just the way you want it. And you're not risking a hurryup job this fall.

Make next winter a season of heatsaving instead of heat-wasting. Savings with Thermoliers differ, of course, with differences in buildings, but a railroad shop saved 35%; one manufacturer, 29%; and a company operating 50 plants averaged 30%. Your savings may be even larger. Get in touch with Grinnell or your local Thermolier distributor.



THERMOLIER

UNIT HEATING

Construction features that save extra money

Use of plain thermostatic trap, the simplest and least expensive kind of trap, made practical because of Thermolier's exclusive internal cooling leg.

Maximum capacity provided at all times and annoying, destructive water hammer eliminated by built-in pitch of tubes and internal cooling leg which assure continuous drainage of condensate.

Damaging strains caused by expansion and contraction eliminated by 'U" type expansion tubes.

Safety and durability assured with leak-proof tube-to-header construction.

Eight other important features. Write for Thermolier Catalog.





GRINNELL

Grinnell Company, Inc., Providence 1, R. I. Branch warehouses: Atlanta * Buffalo * Charlotte * Chicago * Cleveland * Cranston * Fresno * Kansas City * Houston Long Beach * Los Angeles * Milwaukee * Minneapolis * New York * Oakland * Philadelphia * Sacramento * St. Louis * St. Paul * San Francisco * Seattle * Spokane

How Much Does Your Floor Wax Really Cost...?



Materials ... \$?

Labor \$?

Total \$ 7

Your flooring represents a substantial investment...and must be protected and properly maintained. The cost of materials is the smallest factor... while labor often runs as high as 95%. Gerson-Stewart's practical plan of Systematized Sanitation provides trained spe-

cialists to recommend improved products, methods and procedures, developed by laboratory research, for your own maintenance personnel to followthroughout your plant. You will add years to the life of your flooring and lower the total cost of upkeep and maintenance.

G S

Write today for booklet about this simple, individualized plan which enables your present personnel to do more tasks—better!

The GERSON-STEWART Corp.



HORIZONTAL MULTIPLE PUNCH



THIS new machine is for multiple punching the flanges of long, wide sheets, and allows for punch tools to be mounted on varying centers across the ram face. It is fitted with an air clamp device which holds the material down during the punching operation for gauging purposes. Stripping is accomplished by air cylinders which travel with the ram. The machine is available in capacities from 50 to 300 tons. Beatty Machine & Mfg. Co., Hammond, Ind.

23-LB, 2-HP ENGINE



COMPACT (11½" x 13½" x 14½") 2 hp air-cooled engine with twin opposed cylinders weighs only 23 lbs. and is suited to a wide range of portable and lightweight equipment. The engine can be used vertically or horizontally. The engine is said to start easily, and to operate smoothly and without stalling even at tilts up to 45°. The twin opposed cylinders are claimed to reduce vibration to a minimum. Power Products Corp., Grafton, Wis.

COST-SAVING CALCULATOR



TIME-TAB calculator for computing job ticket and piece work time, using the slide rule principle, is said to speed up and make more accurate the compilation of time on assembly, construction and repair jobs. Available calibrated in quarters, tenths or twelfths of hours. Made

(Please turn to page 180)



Thermoid Impregnation Process Assures Longer Hose Life

In every branch of industry . . . in mines . . . in the oil fields ... in foundries, food plants and factories ... everywhere quality hose is required, you can confidently specify Thermoid. Thermoid makes a complete line of quality hose for every industrial use.

If you use hose for handling air, water, steam or oil . . . there is a Thermoid hose "built for the job" . . . each designed for highest operating efficiency.

For quick service call the nearest Thermoid distributor. Thermoid sales engineers are available for advice on special problems.

It will pay you to Specify Thermoid!

Thermoid Quality Products: Transmission Belting • F.H.P. and Multiple V-Belts • Conveyor Belting • Elevator Belting • Wrapped and Molded Hose • Molded Products • Industrial Brake Linings and Friction Materials.

The Thermoid Impregnation Process

insures a deeper penetration of rubber between the threads of the yarn, which encases each individual strand with protective rubber. The rubber acts as a sheath between the strands and prevents the destructive abrasion action as the product is flexed in use. To obtain the required rubber penetration, the twist of the yarn must be to exact specifications. With the yarn twisted too tightly, proper penetration of the rubber compound is impossible. This condition produces abrasion, causing premature failure. On the other hand, if the yarn is twisted too loosely, the product lacks tensile strength. Thermoid has discovered the optimum twist of the yarn which assures maximum rubber penetration and greatest strength. The development of Thermoid Impregnation Process is another step forward in Thermoid's planned program of product improvement, assuring maximum service and lower operating costs to industry through the use of Thermoid Industrial Rubber Products.



Main Offices and Factory • Trenton, N. J., U. S. A. Western Offices and Factory • Nephi, Utah, U.S.A. Industrial Rubber Products • Friction Materials • Oil Field Products

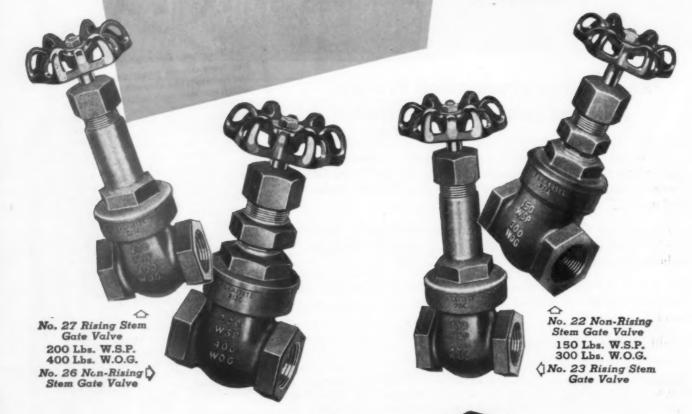
A FULL LINE OF O-B GATE VALVES featuring the

FLEXITITE* DISC

Ohio Brass Gate Valves--now available in a full range from 125 lb. W.S.P. - 200 lb. W.O.G. to 200 lb. W.S.P. - 400 lb. W.O.G.--can be supplied in either the rising or non-rising stem types. And in each O-B Valve, you get the unique Flexitite* Disc. that gives you extra wear on every service.

This disc combines solid wedge strength with sufficient flexibility to adjust itself to full, tight contact with the seat faces. O-B Gate Valves start tight and stay tight.







How Frigidaire Air Conditioning Helps Solve Production Problems

Stepping up worker output and lifting morale are only two of the many ways in which Frigidaire Air Conditioning can help solve production problems for you. Specialized applications of Frigidaire Air Conditioning range all the way from regulating temperature and humidity in a pharmaceuticals laboratory to providing the rigid control of heat, dust and moisture needed for the manufacture and assembly of precision parts.

Frigidaire Air Conditioning is as dependable and efficient as it is versatile. Compressors, cooling units and controls are matched to work together like a championship team. That's why Frigidaire Air Conditioning operates at lowest cost, gives

years and years of trouble-free service.

In addition to a complete line of Air Conditioners, Frigidaire also offers a new Electric Dehumidifier for removing excess humidity. Whatever your air conditioning needs, there is Frigidaire equipment to meet them. And your dependable Frigidaire Dealer is well equipped to provide sound advice on any air conditioning or refrigeration problems. He'll be glad to make a survey of your requirements without obligation to you.

Find his name in Classified Phone Book under "Refrigeration Equipment" or "Air Conditioning." Or mail coupon at right to Frigidaire Division of General Motors, Dayton 1, O. (In Canada, Leaside 12, Ont.)



Self-Contained Model SC 1001

Compact, high-capacity, self-contained air conditioner for business and industry. Quickly installed and easily moved from one location to another. There are also Frigidaire Central System Air Conditioners which offer capacities, types, and sizes to meet almost any air conditioning need.

Frigidaire Store Type Conditioners

Complete, large-capacity air conditioning system in one cabinet that requires little floor space. May be used singly or in multiple, with or without a simple duct system. Heating coil may be added.



Frigidaire Room Air Conditioners

are easily installed, self-contained units capable of furnishing an ample supply of cool, clean, dehumidified air for homes, offices, small workrooms, laboratories, etc.

Frigidaire Air Conditioning

For fast facts about Frigidaire Products—fill in and mail coupon today

Frigidaire Air Conditioning

□ Room conditioners; store type conditioners; central systems. For controlling temperature, humidity, dust. For improving product quality,



ture, humidity, dust. For improving product quality, bettering working conditions for employees.

Frigidaire Electric Dehumidifier

□ Prevents moisture damage, retards rust, mold and mildew, speeds paint and plaster drying in areas up to 25 x 40 x 8 ft. Plugs into any 115 V 50-60 cycle outlet.



Frigidaire Water Coolers

□ Self-contained types for offices and factories. Tank type for industrial water cooling—for cooling spotwelding electrodes, for heat-treating, for high speed coolants.



Frigidaire Low Temperature Cabinets

☐ For storing aluminum alloy rivets in an annealed condition. For shrinking metal parts prior to assembly.IceCream Cabinets for cafeterias and factory



terias and factory stores, available in 4 to 10 hole capacities.

Frigidaire Compressors

For use with cooling units, tank-type water coolers and other applications.



Frigidaire Cooling Units

☐ Forced air cooling for hardening wax products and for controlling temperatures in a wide variety of manufacturing processes.



Frigidaire Reach-In Refrigerators

☐ Self-contained and remote types up to 60 cu. ft. For cafeterias and factory stores.



Frigidaire Beverage Coolers

Self-contained and remote types, for wet or dry storage. For cafeterias and factory stores.



Over 400 Frigidaire commercial refrigeration and air conditioning products —most complete line in the industry.

Name	 . ,	. ,	,					*		*	,
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City				*				*	*		
County				S	ite	21	e				,

\$1,500 inventory abolished — at a cost of \$4.46!



With more than 700 vacuum tubes needed by industry, a tube distributor would find profits consumed by 100% inventories. But by ordering tubes as needed via Air Express, he holds stocks to 25%. Example: Orders \$1,500 tube at 9 A.M. from supplier 900 miles away. Delivered to customer 6 P.M. same day. 16 lbs.: cost, \$4.46.



Remember, \$4.46 included speedy pickup and delivery service, too. More protection, because you get a receipt for every shipment. Air Express is the world's fastest shipping service.



Your Air Express shipments go by the Scheduled Airlines direct to over 1,000 airport cities; fastest air-rail for 22,000 off-airline offices. Shipments keep moving with 'round-the-clock service.

FACTS on low Air Express rates

19 lbs. of machine parts goes 600 miles for \$3.54. 9-lb. carton of new styles goes 1400 miles for \$3.99. (Every kind of business finds Air Express pays.)

Only Air Express g.ves you all these advantages: Special pick-up and delivery at no extra cost. You get a receipt for every shipment and delivery is proved by signature of consignee. One-carrier responsibility. Assured protection, too—valuation coverage up to \$50 without extra charge. Practically no limitation on size or weight. For fast shipping action, phone Air Express Division, Railway Express Agency. And specify "Air Express delivery" on orders.

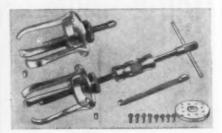


AIR EXPRESS, A SERVICE OF RAILWAY EXPRESS AGENCY AND THE SCHEDULED AIRLINES OF THE U.S.

(Continued from page 176)

of wood and aluminum and weighs 40 oz. An entire day's labor is computed in one continuous operation, and net working time for employee or product in production appears in answer window. Time-Tab, Inc., 2525 Fruitland Ave., Los Angeles, Calif.

3-JAW PULLER



THIS 3-jaw puller, known as the CG-273, produces safe, uniform power and can be used by any mechanic. Spring tension holds the jaws on the work, and a locking nut makes it possible to lock the puller on the job so it will not come off until released. This allows operator to use both hands for the pulling operation. Maximum jaw capacity on outside holds is $8\frac{1}{2}$ ", and jaws are reversible to operate through a $2\frac{1}{2}$ " opening for inside pulls on bearings, sleeves, etc. Available as a screw type or combination of screw and booster hammer type. Snap-on Tools Corp., Kenosha, Wis.

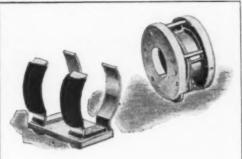
NAILING MACHINE



LARGE wooden assemblies such as pallets and shipping crates can be made with production line efficiency with this new commercial nailing machine. Design of the 24-nail drive, flat nailing and clinching machine allows it to be tailored to meet many exact wood fabricating requirements. The machine is built in various widths to fit the particular job; 72" in the maximum width. It uses 3 to 10 penny nails and includes an adjustable nail feed as standard equipment. Food Machinery and Chemical Corp., Riverside, Calif.

TELL YOUR FELLOW-PUR-CHASING AGENTS ABOUT WHAT YOUR COMPANY HAS TO OFFER — AS WELL AS YOUR NEEDS — THROUGH CLASSIFIED SECTION OF PURCHASING SEE PAGE 334





G-E Permanent Magnet SUB-ASSEMBLIES

Here's a new product which may lower your permanent magnet costs. Permanent magnet component assemblies are specially designed to your specifications—ready for immediate installation in your final product. All permanent magnets are mounted for maximum efficiency. And, assembly and calibration operations are completely eliminated at your plant. For your free copy of General Electric's new bulletin on G-E Permanent Magnet Subassemblies mail the coupon shown below.

Here's a magnet that's simple in design yet is the heart of Penn room thermostats.... thermostats which anticipate heat requirements before temperature changes. The Sintered Alnico 2 permanent magnet snap-acting contact mechanism responds almost instantly to temperature variations.

This application is an excellent example of cost-saving by using stocked G-E permanent magnets. Since the magnet is stocked there are no special tool charges. And orders for stocked magnets are filled quickly, eliminating costly production slow-downs to you.

Perhaps a standard listed magnet can be used in your applications. And if a standard G-E permanent magnet will not meet your requirements, our engineers will be glad to design one specially for you. Remember, too, that General Electric manufactures all grades of cast and sintered Alnico as well as special magnet alloys.

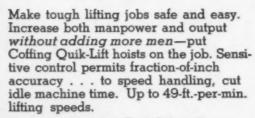
	PARTMENT, SECTION : CTRIC COMPANY IASS.	17-4
Please send me:	() Bulletin, CDM-2A, "G-E PERMANENT MAGNET CAT- ALOG"	() Bulletin, CDM-16, "G-E PERMANENT MAGNET SUB-AS- SEMBLIES"
Name		****************************
	***************************************	***************************************

-	***************************************	





WITHOUT COST OF EXTRA MEN



Your investment in Quik-Lifts will pay good dividends for many years, because they are better built for longer service. You save personal injury, avoid loss or damage with shoe type brakes that cannot slip or drop loads.

Want to know more about Quik-Lifts for increasing your manpower? Send for illustrated folder Z4E giving full information on the 17 sizes, 500 to 4000 lb. capacity.

COFFING HOIST CO.

Hoist-Jacks, "Safety-Pull" Ratchet Lever Hoists, "Mighty-Midget" Pullers. Spur-Geared Hoists, Differential Chain Hoists, Load Binders.

PROVE IT ... in your own Plant!

Try "Height-that's-right seating" 30 DAYS FREE



BRISTOL COMPANY ISSUES DIRECTORY OF PRODUCTS AND OFFICES

The Bristol Company, manufacturers of instruments for recording, indicating, and controlling, Waterbury, Conn., has issued complete lists of its products and trade names, company officers and division heads, and branch offices and factories. Copies are a alable for the asking.

5 1 1 1 SILICONE RUBBER MOLDED PRODUCTS

Availability of gaskets, diaphragms, grommets, washers, seals, packings, tubing and other extruded and molded products made from the new X-7 silicone rubber, is announced by the Stalwart Rubber Co., Bedford, Ohio. The new material has better than twice the resistance to permanent compression over former types of Silicone Rubber and a somewhat greater tensile strength, it is stated.



Illustrating X-7 Silicone rubber products.

The X-7 silicone rubber, in addition to being suitable for dielectric applications is practically unaffected by temperatures ranging from -160 to more than 500 deg. F. It retains its rubber-like qualities and elasticity at extreme temperatures.

It is recommended for use in handling hot or cold fluids, gases and others, as well as for applications where rubber comes in contact with extremes of hot or cold conditions, and it will not become brittle and will not crack after long exposure to air, ultra-violet rays or ozone.

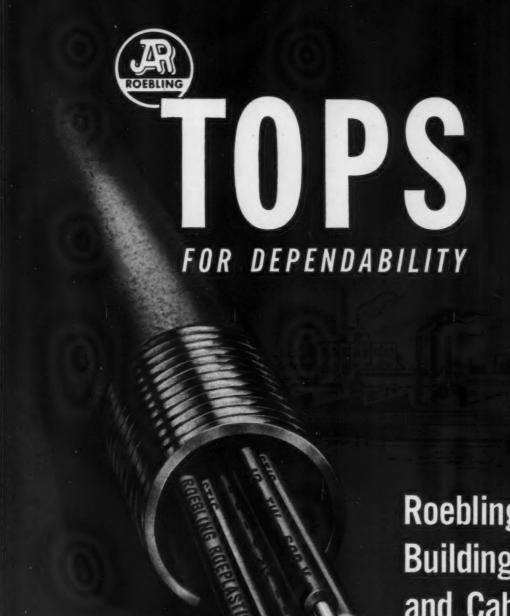
Parts made of X-7 silicone rubber resist the chemical action of lubricating oils and some chemicals.

MOVIE TEACHES BAG SEWING MACHINE OPERATION

1 1 1

A new sound-color motion picture, "A Stitch in Time", has been produced by the Packaging Service Department of Bemis Bro. Bag Co., St. Louis 2, Mo., as a supplement to the company's sewing machine clinics. The 16mm film is in two parts and completely covers the installation, operation, maintenance and repair of the major types of bag closing sewing machines; projection time is about an hour. Bemis plans to make the film a ailable to industrial groups for the instruction of plant personnel, both supervisory and operative.

(Please turn to page 184)



Roebling **Building Wire** and Cable

CONTRACTORS SPECIFY ROEBLING YEAR AFTER YEAR

EXPERIENCE IS THE BEST TEACHER, and it's actual experience that leads so many contractors to standardize on Roebling Building Wire and Cable. They know, from long use and service records, the supreme reliability and economy of Roebling wire and

cable . . . make it their top specification.

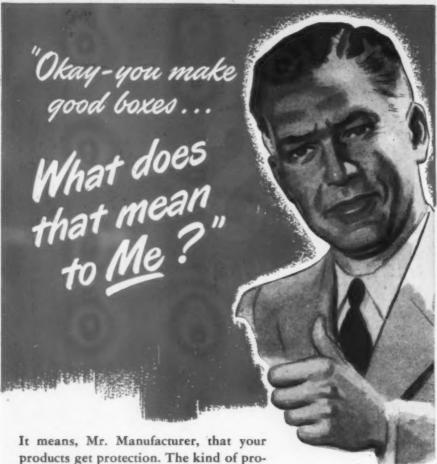
For circuits to 600 volts and conductor operating temperatures to 60°C. (140°F.), Roebling Wire 60 Type R. is unsurpassed. It is synthetic rubber insulated; has a flame-and moisture-resistant fibrous covering; comes with solid

or stranded conductors . . . Of similar construction, Type RH permits conductor operating temperatures to 75°C. (167°F.), and Type RW is adapted for wet locations without lead sheath.

There's a Roebling wire or cable for every requirement . . . call or write your nearby Roebling Distributor. John A. Roebling's Sons Company, Trenton 2, New Jersey.

WRITE OR CALL THE ROEBLING FIELD MAN AT YOUR NEAREST. ROEBLING OFFICE AND WAREHOUSE

Atlanta, 934 Avon Ave. * Boston, 51 Sleeper St. * Chicago, 5525 W. Roosevelt Rd. * Cleveland, 701 St. Clair Ave., N. E. * Donver, 1635 17th St. * Houston, 6216 Navigation Blvd. * Los Angeles, 216 S. Alameda St. * New York, 19 Rector St. * Philadelphia, 12 S. 12th St. * Pittsburgh, 355 W. North Ave. * Portland, Ore., 1032 N. W. 14th Ave. * San Francisco, 1740 17th St. * Seattle, 900 First Ave.



products get protection. The kind of protection that ends costly complaints, that keeps your customers happy, that keeps your customers.

It means that General Boxes are designed to the product . . . that they are actually "A Part of the Product." They are lightweight, compact, extra strong! You save freight, storage space, and gain added protection!

We'd like to tell you more about the very real benefits to you of General Boxes. Won't you write us today?

BOX COMPANY * * * * * shipping containers

GENERAL OFFICES: 48 W. Illinois St., Chicago 10. DISTRICT OFFICES AND PLANTS: Brooklyn, Cincinnati, Detroit, East St. Louis, Kansas City, Louisville, Milwaukee, New Orleans, Sheboygan, Winchendon, Natchez.

Continental Box Company, Inc.: Houston, Dallas.

General Box Company has had more than 25 years of experience in manufacturing shipping containers. Furthermore, our two modern Designing and Testing Laboratories are available for the improved packing of your product. Booklet below gives complete details.



Send for your copy. It shows bow you too can cut costs.



ENDORSE "SAFE-TRANSIT" PROGRAM FOR SMALL PACKAGED-PRODUCTS

All major national carrier associations have now approved pre-shipment testing methods recommended by the Porcelain Enamel Institute Packaging and Shipping Committee for packaged finished metal products weighing 100 lbs. or less, according to R. F. Bisbee, Committee chairman. Designated as Project 1A of the PEI-sponsored "safetransit" program, the testing system is part of an industry project to reduce intransit damage to all finished appliances and allied metal products. Endorsing Project 1A are the Association of American Railroads, Railway Express Agency. American Trucking Associations, and Air Cargo, Inc.

The specifications of Project 1A were developed by the Technical Planning Division of the Packaging and Shipping Committee with the close cooperation of the carrier associations. The Committee's preliminary investigation into methods of shipment of finished metal products weighing less than 100 lbs. showed that no "average" journey could be established. Some products traveled very short distances, others long. Some products were handled twice, others as many as fifteen times. Consequently, the Committee turned its attention from shipping methods to shipping records. As a basis for establishing the tests, the records of four types of finished metal products were considered- those of porcelain enameled sheet panels for gas and electric ranges, washing machine tubs and cabinet panels, holloware, and small porcelain enameled appliances. Shipment and damage records covering a number of years were available for all of these products.

The four groups of products were then divided into two general categoriesthose which, under all modes and distances of transportation, and under all conditions of trans-shipment and storage, had consistently exhibited excellent shipping records-and those products which, under similar circumstances, had consistently sustained heavy damage. The Committee, with the help of the carriers, has been able to correlate the performance of these products in-transit, and to accurately reproduce their actual performance records with simple and practical testing equipment.

Details of the test equipment and procedure for pre-shipment testing of packaged-products under 100 lbs. will be released in due course by the Packaging and Shipping Committee. According to Committee chairman Bisbee, the test procedures and limits for Project 1A achieve their validity through the sound basis of actual shipping experience, and derive no support from high sounding but untried hypothesis.

Tests and specifications carry the unqualified approval of carrier representatives and were developed with their advice and assistance. Said Bisbee, "Perhaps the most outstanding single con-

(Please turn to page 186)

Solution

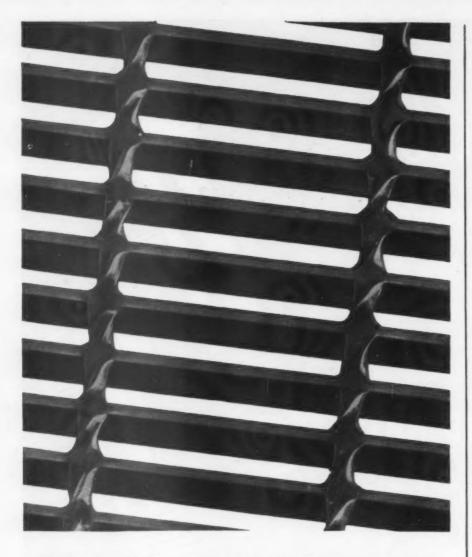
to lasting fastening problems...

REPUBLIC

BOLTS AND NUTS

Whatever the fastening
problem, there's a solution
to be found in REPUBLIC'S
full line of more than
20,000 different sizes and shapes of
headed and threaded products. From clean,
sharp threads to sound, full heads, they
offer positive assurance of lasting fastening
satisfaction. Republic Steel Corporation...
Bolt and Nut Division, Cleveland, Ohio
and Gadsden, Ala... Export Department:
Chrysler Building, New York 17, N.Y.





WHICH ADVANTAGE

is most important to you when specifying grating?



WRITE TODAY . . .

For this "paper-weight-size sample" on your business letterhead, so that you can have a "close-up" of Blaw-Knox Grating Construction.

- Rigid one-piece construction—easy to install?
- 2 Maximum open area for light and
- 3 Easy to paint—all surfaces accessible?
- 4 Non-slip Twisted Cross-Bar?
- 5 Self-cleaning—no sharp corners to clog?

Blaw-Knox Grating Has Them All!

BLAW-KNOX DIVISION OF BLAW-KNOX COMPANY

2075 Farmers Bank Bldg., Pittsburgh 22, Pa. Offices in Principal Cities

BLAW-KNOX GRATING

(Continued from page 184) clusion reached as a result of these investigations is the fact that there is no basis for predicting the safe transit of product other than a standard performance test of the packaged-product."

G-E LEAK DETECTOR

The accompanying illustration shows G-E leak detector being used to spot leaks in footballs just off the production line, at plant of the Collette Manufacturing Co., Amsterdam, N. Y. The company formerly tested the balls by inflating them and allowing them to stand for ten days. This required a permanent "in process" stock of approximately 200,000 balls, and it still did not reveal slow leaks. With the detector the balls are checked as they



Leakage of but 1/100th ounce per year is readily spotted by detector.

come off the production line, infinitessimal flaws being spotted at once. The test is made by introducing a small quantity of freon gas into the footballs during the inflating process. A sample of the atmosphere surrounding the ball is then drawn into the leak detector, and if there is any trace of freon in the air, the indicator on the instrument makes it known.

The detector is sensitive enough to locate a leak as small as 1/100th of an ounce a year. The instrument will respond to any form of halogen such as freon, carbon tetrachloride, or other vapor which contains chlorine, bromine, fluorine or iodine. The instrument has been used to check a wide variety of presure systems for leaks, from refrigerator coils to airtight parts for atom-smashers.

7 7 7 DIGEST OF NEW UNIFIED SCREW THREAD SYSTEM

Die Headlines, Vol. III, No. 5, published by The Eastern Machine Screw Corporation, 140 Truman Street, New Haven, Conn., deals with Unified Screw Threads and the new proposed American Standards Association publication Bl.1 "Unified and American Screw Threads for Screws, Bolts, Nuts and other Threaded Parts." Thread forms and tolerances are illustrated.

(Please turn to page 188)



A plating
"Success Story

Co-owners M. W. Hays (left) and Oliver S. Pendlay (right), discussing expansion plans with Sales Manager E. T. Brown.

In the Rapid Rise of the Cadmium & Nickel
Plating Company from Obscurity to a Leading Position,
There's an Idea for Your Business!

From a single hand-plater in a shed to one of the biggest job shops on the Pacific Coast in the space of 18 years—that's the story of the Cadmium & Nickel Plating Company, Los Angeles. It's a personal tribute to the energy, ability and vision of two men—M. W. Hays and O. S. Pendlay—and to the Udylite equipment around which they built their business.

RAPID GROWTH IN FIRST DECADE

It didn't take Messrs. Hays and Pendlay long to see that the Coast offered plenty of business for the shop equipped to turn out plating work fast and well. They moved to bigger quarters the year after they started (1931), ordered new Udylite barrel-plating equipment, and began getting into volume work. Growth came rapidly. Bigger orders called for new Udylite Semi-Automatic machines . . . then Full Automatics. By the time they lit the candles on their 10th birthday cake, they were moving again to larger and more



Udylite Barrel Platers are used for quality finishing of all small parts.

modern quarters . . . the fine 22,000 sq. ft. structure they occupy today.

Tour their plant today and you'll see the finest in production plating operations. There's a complete Barrel Plating Division—two big Udylite Full Automatics that deliver up to 100 racks per hour—a

Automatic control equipment with Udylite Rectoplaters provides maximum direct current efficiency.





Two Udylite Full Automatics are used for highspeed production plating.

versatile Udylite Semi-Automatic 1500 gal. Nickel Plating unit—and a battery of high-efficiency Udylite Rectoplaters. Efficient planning speeds the work directly from the raw stock department through the various cleaning and plating cycles and out for shipping.

Co-owners Hays and Pendlay give much of the credit for success to better plating methods, made possible by Udylite-engineered equipment. "It helped us cut costs—improve quality—develop fast output for prompt delivery—and gain a 'quality' reputation we're proud of. We look forward to even bigger things in the years ahead," the enterprising C&NP executives report.

PUT UDYLITE IN YOUR PLANS

There's food for thought here for other progress-minded plating executives. Let one of our technical men go over your plans with you, and show you how Udylite's high-efficiency equipment will improve your operations, methods and processes. There's no cost or obligation for this expert technical assistance that can point the way to better quality, faster output, more business and greater earnings and growth in your plant. We'd like to work with you, so drop us a line soon. Address: The Udylite Corporation, Detroit 11, Michigan.

Pioneer of A Better Way in Plating



THE UDYLITE CORPORATION, DETROIT 11, MICHIGAN

With Towmotor Mass Handling, men and production machines operate at peak efficiency. Maximum production at lowest cost is the result. Towmotor Fork Lift Trucks and Tractors offer you every advantage and benefit of modern lift truck operation. Get maximum production every hour, every

day. You can-with Towmotor.



Redesign your plant layout in miniature. Send today for miniature model Towmotors, actual scale 1/4" = 1'. \$1.00 each. Write Towmotor Corporation, Division 11, 1226 E. 152nd St., Cleveland 10, Ohio.

Get Maximum Production from men and machines

WITH TOWMOTOR

*MH is MASS HANDLING-the systematic movement of the most units, in the shortest time, at lowest cost.

TOWMOTO

FORK LIFT TRUCKS and TRACTORS

RECEIVING . PROCESSING . STORAGE . DISTRIBUTION



Model AEH Air-Cooled Engine, the new Model AEN turns up 7.5 H.P. at 3,000 R.P.M. as against 6.1 H.P. at 3,200 R.P.M. delivered by the engine it replaces. Weight: 110

lbs., as against 130 lbs. for the AEH.

All this has been accomplished without sacrificing heavy-duty crankshaft capacity or any of the traditional Wisconsin features such as: Tapered roller bearings at both ends of the drop-forged crankshaft; oil pump and spray lubrication; weather-sealed high tension outside magneto with impulse coupling for quick starting and dependable ignition in any climate, in any weather; flywheel-fan air-cooling — extremely efficient at all temperatures from sub-zero to 140°F.

The Model AEN represents a major achievement in the design and construction of a light weight heavy-duty power unit for all-purpose power applications. Write for Bulletin S-109.

The Wisconsin line includes 4-cycle single cylinder, 2- and 4-cylinder models in a complete power range from 2 to 30 H.P.



WISCONSIN MOTOR CORPORATION

World's Largest Builders of Heavy-Duty Air-Cooled Engines

POTENTIAL HAZARD IN WAR SURPLUS FIRE EXTINGUISHERS

Reports have come to our attention, states the National Board of Fire Underwriters which indicate that there is much confusion and ignorance of the dangers involved and misunderstanding of the nature, safety, acceptability, and applicability of war-surplus carbon dioxide extinguishers, carbon dioxide compressed gas cylinders, valves, etc., and compressed gas containers for conversion into fire extinguishers. There have been a number of reports of accidents and at least one record of a very serious nature, resulting from the use of substandard extinguisher assemblies. We have also received numerous inquiries concerning the acceptability and applicability of such extinguishers or conver-These inquiries indicate considerable interest and concern throughout the fire prevention and protection industry, and it is in an attempt to give some brief information on the subject that this bulletin is offered.

It is fundamental that persons contemplating the purchase of such equipment should at the outset request information from reliable and experienced people or companies who are familiar with the subject and who are the manufacturers of the equipment involved. To proceed without this advice is both un-

wise and dangerous.

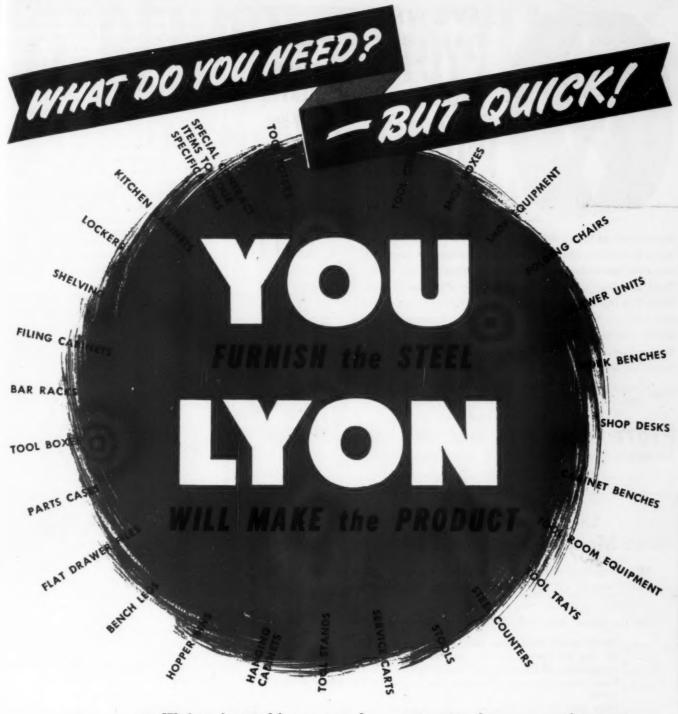
Some of the war-surplus, hand carbon dioxide extinguishers-and these were specifically designed for military usewhich are being offered for sale by various and sundry concerns may be similar to extinguishers which have been labeled by Underwriters' Laboratories, Inc., but even these devices, because of special design, wire winding, age since their date of test and manufacture, and the Interstate Commerce Commission requirements for periodic retesting, should be judged with caution. Expert advice should be obtained before considering their use.

Carbon dioxide, a valve, a cylinder, and some make-shift parts do not make a fire extinguisher. Quite to the contrary-they may make a very dangerous article, unless they, with other special nozzles and appurtenances, are engineered, designed and assembled into an effective unit by

people skilled in the art.

There is particular danger in the use of life raft inflation cylinders and valve equipment which uses carbon dioxide, since such equipment was never designed or built for fire extinguishing, and its use for fire extinguishing, might actually spread the fire and otherwise be dangerous. Light weight oxygen cylinders and the valves used for supplying oxygen to airplane crews during the War is not suitable apparatus for carbon dioxide for fire extinguishing purposes and may be even more dangerous and unsuited than the life raft apparatus. Carbon dioxide system units built and used during the War in special engineered fire extinguishing systems for airplanes, tanks, boats, etc., are not suited for other than the

(Please turn to page 190)



 We buy the steel from you and ship the pound-for-pound equivalent in any selection of LYON products, at regular published prices (see partial list below) or special assemblies, sub-assemblies,

parts, etc., for your products-to your specifications.

For complete information about the "customer steel plan" get in touch with your nearest LYON District Office.

PARTIAL LIST OF LYON PRODUCTS

METAL PRODUCTS, INCORPORATED

General Offices: 433 Monroe Avenue, Aurora, Illinois Branches and Dealers in All Principal Cities

- Kitcher: Cabinets
- Filing Cabinets

- Display Equipment
 Cabinet Benches
 Hanging Cabinets
 Folding Chairs
 Welding Benches
 Drawing Tables
 Bench Drawers
 Work Benches
 Bar Racks
 Hopper Bins
 Desks
 Sorting File
 Bin Units
 Parts Cases
 Stools
 Ironing Tab

- Wood, Working Benches Hanging Cabinets
 Economy Locker Racks Welding Benches

- Ironing Tables



Pyott Que-Dee (quick detachable) Flat Belt Pulleys offer the same economies and time-saving advantages in assembly and field operations as Pyott Que-Dee Sheaves. The Taper-Tight Bushing, with standard keyway, slips easily over shaft. The tapered hub of the Que-Dee Pulley slides easily into position on the Taper-Tight Bushing. Three bolts pull pulley bushing and shaft into a positive powerful pull-up fit. For dismounting, the same bolts, inserted in demounting holes, act as jack screws to loosen pulley.

> Immediate Delivery in popular diameters and face widths from complete factory stocks or your mill supply.

> > WRITE FOR CATALOG 70A

PYOTT FOUNDRY & MACHINE CO.

326 NORTH SANGAMON STREET . CHICAGO 7, ILLINOIS

For accurately halanced SHEAVES and V-Belt Drives

CALLON



which, although ideal for the special military use and installation for which they were sold, may be unwise and unsuited for any other use. In short, it is evident from any practical view that, although some of the war surplus extiguishers may be applicable and safe, even these deserve to be considered with a great deal of skepticism, in view of their age and special construction and the lack of Underwriters' Laboratories' label. Converted extinguish-

(Continued from page 188)

exact use for which they were sold. They

were designed to go with certain apparatus and for certain size and type spaces. Many of these system units were fitted

with special, high rate of discharge valves

ers, unless altered by reputable and known manufacturers of fire extinguishers and bearing the listing and approval of Underwriters' Laboratories Inc., should not be considered.

FOLDING RULE CAN BE **BENT & TWISTED**

The accompanying illustration shows how new type six-foot zig zag folding rule made by the Durall Tool Corp., 117 Woodworth Ave., Yonkers, N. Y., can be bent and twisted like a pretzel, in spite of which it will spring back to its



normal shape. It is made of a special hardened and tempered alloy steel finished in white enamel that is baked on at over 500 deg. F. The rule can be used to measure pipes, rounds and pulleys. and extends readily for long measurements. The company states the rule is unbreakable, and that it is unconditionally guaranteed. The rule is slightly concave, thus protecting the calibrations and numbers

1 1 1 NEW ALUMINUM FINISH

A new coating material called Spekaluminite, which is applied by dipping or spraying, and then put in baking oven, is announced by Special Chemicals Corp., 30 Irving Place, New York, N. Y. The coating is said to adhere perfectly to all metals and plastics, and it is guaranteed not to peel or flake. It will air-dry dustfree in five minutes, and according to the manufacturer one spray coat withstands salt spray on cold rolled steel over 200 hours. It is also stated that the coating has a temperature resistance of over 700 deg. F., and that laboratory tests have no appreciable change in color, flexibility or durability at a temperature of 1000 deg. F. Free sample is available for test-

(Please turn to page 192)

Cleveland Container Products Serve Many Purposes and Fields of Activity

All are quality products . . . rightly priced . . . rapidly produced. Our Creative Design and Engineering Departments are at your service.

For the latest data and ideas check the items of interest to you.

- Spirally wound Tubes, Cores and Cans.
- All fibre and combination fibre and metal cans.
- Friction plug, slip cover, screw cap containers.
- Paper thread protectors for male threads (tubes) for female threads (plugs).
- Paper discs.
 - Kraft and fish paper tubes for coil forms and condenser covers.
 - Cosmalite-spirally laminated paper base phenolic tubing for the electrical industry.

Your inquiry will be given immediate attention.

May we serve you?

CLEVELAND 2, OHIO 6201 BARBERTON AVE.

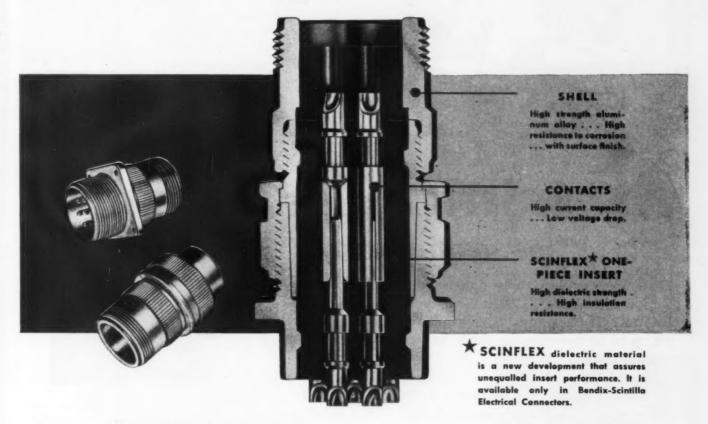
- All-Fibre Cans Combination Metal and Paper Cans Spirally Wound Tubes and Cores for all Purposes
- Plastic and Combination Paper and Plastic Items

PRODUCTION PLANTS size at Prymoseth, Wisc., Ogdeschurg. M.T., Chicago, III., Bettait, Mich., Jamezhorg. M. I.
PLASTICS DIVISION at Prymoseth, Wisc. o ABMASTHE DIVISION of Circuitand, China
SALES OFFICES: None 5627, Grand Control Incrincial Boolings, New York 17, M. T., atto 667 Name St., Startford, Com.
CAMBOURR PLANT: The Circuitand Control Contro



BENDIX-SCINTILLA

ELECTRICAL CONNECTORS offer you SCINFLEX* SUPERIORITY!



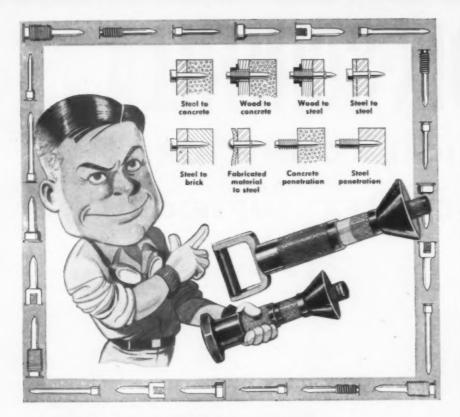
The use of SCINFLEX dielectric material, an exclusive Bendix-Scintilla development of outstanding stability, increases resistance to flashover and creepage. And this is only part of the many new advantages you get with Bendix-Scintilla* Electrical Connectors. The contacts carry maximum currents with practically no voltage drop. In temperature extremes, from -67° F. to $+300^{\circ}$ F., performance is remarkable. Dielectric strength is never less than 300 volts per mil. Bendix-Scintilla Connectors have fewer parts than any other connector on the market-and that means lower maintenance costs and better performance.

PLUS ALL THESE OTHER FEATURES

- Moisture-proof, Pressure tight
- Radio Quiet
- Single-piece Inserts
- **■** Vibration-proof
- Light Weight
- High Insulation Resistance
- Easy Assembly and Disassembly
- Fewer Parts than any other Connector
- No additional solder required

Write our Sales Department for detailed information.





JOE RAMSETTER ... the multi-job man!

Fastening jobs like those illustrated are all in a day's work for JOE RAMSETTER. With his light, self-powered RAMSET TOOL, and 63 sizes of pins and studs, he can set up to 50 fasteners per hour, to cut costs and finish the job faster.

No chipping, no drilling, no plugging. No electric or air lines. Prepare the RAMSET TOOL in 30 seconds. Then, place it against the work and RAM! The fastener is set instantly, tightly, easily. We teach any alert, careful workman to "RAMSET", in 30 minutes.

For fastenings in steel, concrete and other hard-towork materials, RAMSET pays big dividends in time and money. Use the coupon for complete information.



Stemco Corporation Cleveland 16 (Rocky River), Ohio.

In Canada—Globe Machine Tools, Batawa, Ontario.

Sto	emce	and	po	Roc	n, ky I	Rive	er),	Ohio)									P-d
Ple		sen								den	nonsi	tration	of	RAMS	ET	FAS	TEN	INC
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	ldre																	

"METAL QUALITY"— NEW BOOKLET ON FORGINGS

Reference data booklet entitled "Metal Quality", 60 pages, has been issued by the Technical Committee of the Drop Forgings Association, 605 Hanna Building, Cleveland, Ohio. The booklet describes and illustrates the development of metal quality progressively through-out hot working operations from the blast furnace to the finished forging. A discussion is presented of forging quality and the proper selection of metals for forgings, and steps in making forging dies and the various methods and equipment used in hot working steel by forging are reviewed. Forging procedures of various kinds of parts are outlined such as parts with thin sections, projections, holes, etc.

NEW IDEA IN HAND TRUCKS

New type hand truck equipped with short crawler treads, in addition to standard wheels, for simplifying the handling of loads over curbs, stair flights, and so on, is announced by Associated Services, Carlinville, Ill. The treads roll easily over steel bearings set in aluminum frames, and reaching from step to step, the load is handled easily without chipping or marring stairways.

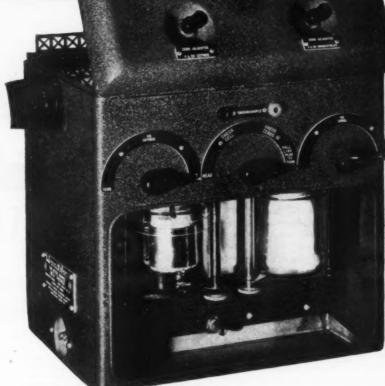


The model illustrated is equipped with a retractile swivel wheel. This supports the load when rolling on a level floor. The steel model of this type has a capacity of 1500 pounds. Also, it will be noted that there are two wheels near the top of the frame. These are designed for use when loading heavy equipment or other heavy units onto a truck. These wheels are placed on the end of the truck permitting the ground end to be lifted and the whole load rolled onto the truck. There are several models of the truck, all of which are equipped with the crawler tread. Printed matter available.

ASA OFFERS ANALYSIS OF NEW UNIFIED SCREW THREAD STANDARD

The American Standards Association, 70 E. 45th St., New York, N. Y., has given its final approval to a new American Standard which puts into effect the Unified Screw Thread system agreed upon by Great Britain, Canada, and the United States by the Declaration of (Please turn to page 194)

See this remarkable instrument in action!



Cities Service Industrial Heat Prover—Measures the Combustion Efficiency of Any Furnace Using Any Type of Fuel

FREE...This Helpful New Booklet

Cities Service Oil Company Sixty Wall Tower, Room 372, New York 5, N. Y. Please send me without obligation your new booklet entitled "Combustion Control for Industry."

NAME______ADDRESS

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COMPLETE

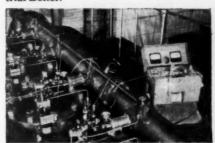
about the Cities Service Heat Prover—how it works, its many applications, its record of performance—is contained in a new booklet entitled "Combustion Control for Industry." Write for your free copy today. Use coupon at left.



1. HUNDREDS OF INDUSTRIAL FIRMS, including leading steel, locomotive, truck, automobile, aircraft, tool, instrument manufacturers and others, are profiting from this unique service. Above shows use on Open Hearth Steel furnace.



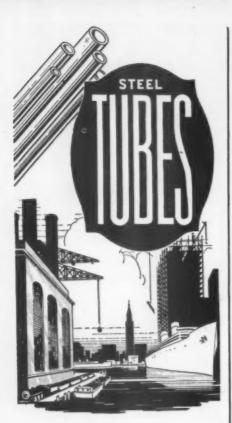
2. IMMEDIATE PRODUCTION INCREASES are realized by many firms through the control of furnace atmospheres. The instrument registers quickly and accurately both excess oxygen and unburned fuel being wasted. Picture above shows Industrial Heat Prover in use on furnace of an Industrial Boiler.



3. GAS AND DIESEL EXHAUST ANALYSIS
Picture above shows the Heat Prover in
use on a large 4 cycle Diesel. This remarkable instrument tells you quickly, accurately and continuously what percentage
of the fuel entering the combustion chamber is converted to productive energy.

APRIL, 1949

Want Additional Product Information? See page 19.



We continually endeavor to anticipate the needs of our customers. Consult us about your tube requirements early.

> Boiler Tubes — All Types Expanders & Fittings

> Stay Tubes — Marine
> Upset & Expanded

Condenser & Heat Exchanger Tubes

Locomotive Tubes to A. A. R. Specs.

Pipe Size Pressure Tubing

Mechanical Tubing Seamless & Welded

Stainless Steel Tubing Standard & Extra Heavy

Special Analysis Tubing



We are equipped to fabricate tubes to your specifications in our own shops.



(Continued from page 192)

Accord signed in Washington last November. The British Standards Institution and the Canadian Standards Association are working on similar standards to put the unification plan into effect in their countries.

This American Standard, Unified and American Screw Threads for Bolts, Nuts, and Other Threaded Parts, B1.1-1949, presents in tables, diagrams, and formulas, the dimensions of the Unified Threads, as well as those threads which for the time being remain standard in the United States alone.

The American Standards Association has prepared a detailed analysis of the new American Standard, including a comparison with the 1935 edition which it supersedes. Copies of this analysis are available upon request.

STEEL INDUSTRY NEEDS HEAVY SCRAP

A survey of major steel companies shows there have been no important cancellations of contracts for shipments of German scrap, according to Robert W. Wolcott, president, Lukens Steel Company, and chairman, Committee on Iron and Steel Scrap of American Iron and Steel Institute, New York.

In reply to recent published statements and inference indicating that the need for scrap might be less urgent, Mr. Wolcott said the steel companies will need all the heavy melting scrap they can possibly obtain, since production of steel is now greater than ever before in war or peace, which means that record-breaking tonnages of scrap are being used and will continue to be needed. He reaffirmed the hope that at least one million tons of iron and steel scrap could be imported, principally from Germany, this year.

No cancellations by steel companies are contemplated providing the scrap comes up to specifications and is received within promised delivery dates. The steel companies are in great need of heavy scrap which can be processed faster in steel-making furnaces, thereby increasing total production. In order to satisfy the heavy demand for steel it is imperative that the quality of the scrap be maintained at a high level in conformity to established specifications, he said.

NEW LONG-WEARING SERVICE ENTRANCE CABLE

United States Rubber Company has developed a new long-wearing service entrance cable for carrying electricity from main power lines to homes, offices and industrial buildings.

The new cable, because of a natural rubber insulation around its conductors and an outside jacket made of neoprene, will wear four to five times longer than the conventional braided types, the company said.

The neoprene jacket will eliminate "festooning," the separation of the out-

(Please turn to page 196)

IMPERIAL WELDING, CUTTING and SOLDERING EQUIPMENT

No. 1178-C Welding and Cutting Outfit



Here is a complete welding and cutting outfit with all latest improvements for handling all types of work—
light, medium and heavy . . . also many other outfits, torches, a ccessories available.

No. 32 Soldering and Brazing Outfit

Produces Very Hot Flame Burns Acetylene

An all-purpose outfit which will handle all types of open-flame soldering operations. Furnished complete with 4 different soldering tips and soldering iron—providing in effect 5 different torches.

Ask for Catalog 350 on Imperial Industrial Products



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HERE'S NEWS: More and more purchasing agents in every industry, even those buying a single item, are finding it pays off to have at hand this one chemical market authority—O.P.D. on their desks every Monday morning.

WHY? Because it gives the whole week's round-up of chemical news from seller to buyer (5,000 to 6,000 chemicals and related materials quotations) in one business hour.

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If you are a purchasing agent the chances are you buy at least one chemical in some form. If you do, you can't afford not to tighten your grip by having authoritative up-to-the-minute news on that item.



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CELANESE* HELLES PROPIONAL DEHYDE

Now Available in Volume

Propionaldehyde, formerly produced in pilot plant quantities, is now on the Celanese list of major chemicals, and available in tank car quantities. With properties midway between acetaldehyde and butyraldehyde, this aldehyde has the typical highly reactive qualities of the aldehyde group. It can be used to enhance the properties of many products wherein other aldehydes are now used.

FORMALDEHYDE · ACETALDEHYDE

As a large volume producer of important industrial aldehydes, Celanese offers these chemicals in the quantities you need. Formaldehyde—sold commercially as Formalin—is 40% formaldehyde by volume, 37% by weight. It is obtainable

in both methanol inhibited and uninhibited grades. Acetaldehyde is supplied at better than 99% purity to meet the most rigid industrial requirements.

ALDEHYDES AND DERIVATIVES

Celanese is now in position to furnish you with special aldehydes and aldehyde derivatives to fit your specific end uses. Our research and production experience gives you assurance of prompt service, high quality, and low cost.

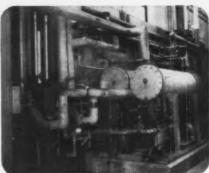
Look to Celanese for technical assistance in adapting these chemicals to your industrial needs. Celanese Corporation of America, Chemical Division, 180 Madison Avenue, New York 16, N.Y.



ALDEHYDES · ALCOHOLS · ACIDS · SOLVENTS · GLYCOLS · KETONES · PLASTICIZERS



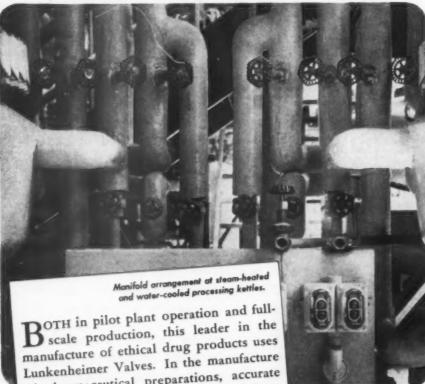
Insulated steam mains and header fitted with Lunkenheimer Valves.



Fuel oil heating set showing installation of

modern pharmaceutical manufacturing Controlled with UNKENHEIMER VALVES

...in plant of G. D. Searle & Co., Chicago



of pharmaceutical preparations, accurate and dependable control is essential from raw materials to finished products, and in the handling of process steam and refrigerants as well.

Wherever dependable flow control is important-in large and small plants serving every branch of industry throughout the nation-you'll find representative installations of Lunkenheimer Valves.

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WHETHER YOU'RE PLAN-NING a new plant, expansion of present facilities or modernization . . you can specify Lunkenheimer Valves with utmost confldence. Available through distributors in all industrial centers.

(Continued from page 194)

side braid from the cable, which occurs in the conventional types. The neoprene jacket also gives the cable unusually high resistance to rain, ice and sleet, deterioration by sunlight, and it is fire retardant.

The cable is approximately one-quarter inch smaller in overall diameter than braided types which will mean a smaller ice and wind load. It weighs the same. however. Its cost is slightly higher than braided cable but its long-wearing quality more than offsets the price difference, the company said.

The cable is being produced in the following sizes: three No. 6 conductors, two No. 6 conductors and one No. 8 conductor, three No. 8 conductors. Deliveries are on a 60 to 90 day basis. It is approved by Underwriters Laboratories as type "S. E."

NEW STARRETT SOUND MOVIE FEATURES PRECISION MEASURING

The Tools and Rules for Precision Measuring", is a 30 minute, 16-mm. sound movie just released by The L. S. Starrett Company, Athol, Mass.

Presenting educational information in an instructive and entertaining manner, the film opens with a brief history of the development of precision measuring methods and standards followed by many scenes of modern applications to illustrate the basic rules and the most widely used precision measuring tools. Many new and improved tools are shown in use and instructions for reading the micrometer and Vernier are presented in a new and simplified form.

The film is planned primarily for instructional use in vocational and industrial shop classes and for training purposes before groups of shop executives and mechanics. It is also designed to give industrial supply salesmen essential knowledge of the requirements for precision tools in industry.

Free showings to interested groups can be arranged through the company.

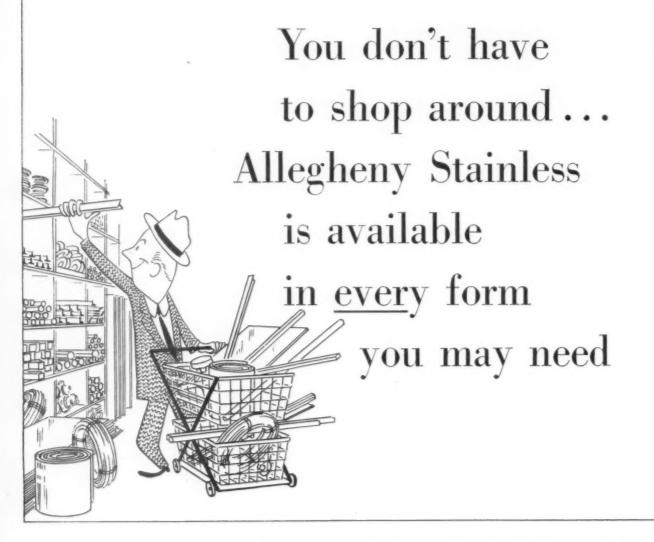
FOURTH SOUTHERN INDUSTRIAL SHOW AT ATLANTA

The Fourth Southern Machinery and Metals Exposition is scheduled to be held at the Atlanta Municipal Auditorium, Atlanta, Ga., April 25-28. The Southern Industrial Conference on Machinery and Metals will be held in conjunction with the exposition. Under the direction of the Engineering Division of Georgia Institute of Technology, the conference program will include seminars on "Advances in Foundry Practice", "Use of Machine Tools", and "The Effective use of Labor Hours".

Additional information can be obtained from the Exposition management, Michael F. Wiedel, executive vice president, 267 E. Paces Ferry Road, N. E., Atlanta 5, Ga.

(Please turn to page 200)







WHATEVER you want, it's available in Allegheny Metal—from the finest of wire to heavy plates, eastings and forgings, including sheets, strip, bars, shapes, tubes—everything!

That's not only handy, but advantageous: one reliable source, one undivided responsibility, one well-known standard of quality and uniformity. Furthermore,

we're steadily improving supply facilities—you can get Allegheny Metal promptly in any grade, form or finish.

When you're in the market, keep it in mind to specify Allegheny Metal, the pioneer stainless steel. And remember, wherever you use it, Allegheny Metal looks better, lasts longer, works out to be cheapest in the long run.

Complete technical and fabricating data—engineering help, too—yours for the asking.

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MORE CAPACITY in LESS SPACE

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PILLOW BLOCKS



COMPACT, STREAMLINED DESIGN.



One-piece housing, reinforced at stress points for extra strength. Can be mounted in any position.

HEAVY SERIES FAFNIR WIDE INNER RING BALL BEARING WITH SELF-LOCKING COLLAR.



UNRESTRICTED SELF-ALIGNMENT IN ALL DIRECTIONS



MECHANI-SEALS PLUS integral synthetic rubber and felt washer. External slinger throws off contaminants.



Ask your industrial distributor to show you the new line of Fafnir Heavy Duty Pillow Blocks, Type LAO, or write for comprehensive literature. The Fafnir Bearing Company, New Britain, Conn.

FAFNIR BALL BEARINGS

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LINE IN AMERICA

Gage... Awkward and Not-so-close Dimensions the Easy, Quick Way — Like this—



Many hard-to-get-at dimensions are not inspected because it seems easier to take a chance. Thin structural sections later break down; thick overweight sections waste material. Dimensions having wide-open tolerances are often checked by slow, antiquated methods — or methods which are not very accurate for even the wide-open tolerances.

The outstanding advantages of these Federal Indicating Caliper Gages are their unusual convenience, and their easy, quick handling. They inspect dimensions accurately that are very difficult to check in any other way. In case after case, their use has saved many times their nominal cost. Use Federal Indicating Caliper Gages to inspect patterns, cores, castings, forgings, tubing, shells, bottles, plastics, pipe elbows, valve bodies, or irregularly formed shapes of any description.

Graduated in .01" or 1/64".

Write Gaging Headquarters about a Gage with jaws shaped to fit your particular job. Send print, mark dimensions, and refer to this advertisement. Federal Products Corporation, 1106 Eddy Street, Providence 1, R. I.



Dial Indicators • Indicating Gages Special Gages • Electronic and Automatic Sorting Gages • Air Gages

ANNOUNCE DARK GRAY VITROLITE STRUCTURAL GLASS

Production of a new dark gray color of Vitrolite structural glass has been started at the Rossford plant of Libbey-Owens-Ford Glass Company, Toledo, Ohio, making a total of 11 colors in which Vitrolite is now available. The others are sky blue, white, black, peach, light gray, jade, red, cadet blue, mahogany and Alamo tan. The colors are permanent and the surface is easily cleaned.

NEW BOOKLET "HOW STEEL IS MADE" OFFERED BY INLAND

The story of modern steelmaking, from the mines to finished steel, is informally told in a new 64-page booklet, "How Steel Is Made", just issued by Inland Steel Company.

Liberally illustrated with sketches, diagrams, and photographs, "How Steel Is Made" was planned primarily for the layman—executives who buy and use steel, workers who fabricate steel, engineering students, and others to whom steelmaking is of interest.



The booklet begins with a brief historical outline of steelmaking, then describes the many phases of modern steel production-mining of the essential raw materials for steel manufacture; methods of making pig iron and steel; pouring, soaking, and blooming of the ingot; and, finally, rolling of the many finished and semi-finished steel products. It dwells momentarily on modern quality control and research procedures, and includes an informative exhibit showing the microstructure of various steels. From cover to cover it is written in the nontechnical language of everyday life—interesting and intelligible-yet authentic and comprehensive.

Copies of the booklet are available on request from Inland Steel Company, Room 1271, 38 S. Dearborn St., Chicago 3, Illinois.

FREE HANDBOOK ON BATTERY TECHNOLOGY

1 1 1

Forty-page pocket-size handbook of instructions and engineering data on the care of motive-power batteries, has been published by the Gould Storage Battery Corp., Trenton, N. J. It is divided into four sections,—Care and Operation; Maintenance and Repairs; Parts; and, Technical Data. It is prefaced by two (Please turn to page 202)



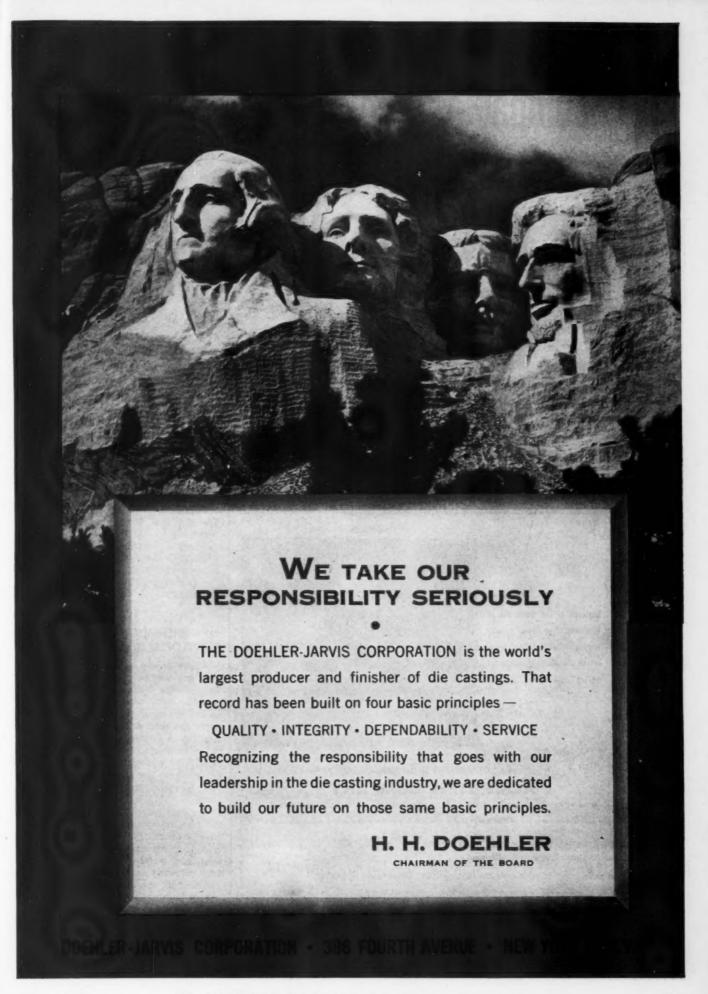


Holds oil, gasoline, kerosene, alcohol, light varnishes, clear lacquers, thinners, solvents and most other liquids. Fast-flowing. Easy to operate...closes automatically. Can be locked closed. Cannot be left open by accident—an important safety factor. Operating efficiency not affected by heat or cold. Extra sturdy. Millions in use. Has standard 3/4" pipe thread.

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IMPERIAL



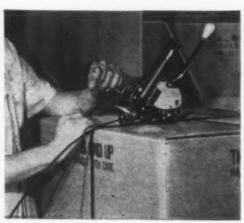
9 out of 10 companies can save on shipping with ACME STEELSTRAP

HERE'S HOW EBCO DID IT. Ebco Manufacturing Company, Columbus, Ohio, package their water coolers using Acme Steelstrap and Acme Equipment. They report a saving of 33% in materials and time over previous packaging method.

In addition, using Acme Unit-Load Band for freight car shipments, this company has obtained savings of 25% in dunnage materials, 50% in loading time and labor, and 90% in reduction of breakage and damage claims.

Find out how an Acme Shipping Specialist can help you. Call him (no obligation, of course) — or mail the coupon today for free booklet of case studies, "Savings in Shipping."

Cless-up of the Acme No. 3 Steelstrapper showing application of Acme Steelstrap which saved 33% in packaging cost.



STRAPPING DIVISION

ACME STEEL COMPANY

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ACME STEEL CON 2838 Archer Avenue,	
Please send me a copy	of your case history booklet, "Savings in Shipping."
NAME	
COMPANY	
ADDRESS	
CITY	ZONE STATE

(Continued from page 200)

double-page spreads giving exploded views of the tape insulated and matinsulated types of batteries. Each part of the battery is clearly shown in relation to the others, and is keyed to descriptive text and instructions which follow. Ten pages, eleven photographs and one chart are included in the Maintenance and Repair section. A particularly useful table gives the ratios of parts of water to parts of acid required to obtain given specific gravities when mixing by volume, both with 1.835 sp. gr. acid and 1.400 sp. gr. acid.

The Technical Data section includes 8 charts of two general types. Four charts tabulate battery-charger ampere-hourmeter settings required to give a battery the correct charge, depending upon its state of discharge. Four charts give battery capacities in terms of ampere hours, amperes, and kilowatt hours at both the 6-hour and 8-hour discharge rates. Copies of the handbook are avail-

able without charge.

WELDING ALLOY FOR THIN ALUMINUM WORK

Eutecto Welding Corp., 40 Worth Street, New York, announces a new welding rod known as Electrod 900X for joining thin aluminum at temperatures below melting point of aluminum with greater fluidity than attained by aluminum brazing. It is used with a low heat flux that supplants the common methods of aluminum brazing and fusion welding The low heat factor is said to make it adaptable to all light gauge aluminum welding without fear of distortion. It is available in 3/64" and 1/32" in coil form; bonds at 900 deg. F. and remelts at 950 deg. F., and has a tensile strength of 30,000 psi.

NEW PHENOLIC MOLDING POWDERS DEVELOPED BY GENERAL ELECTRIC

A new group of general purpose phenolic molding powders which will enable the plastics industry to achieve lower material costs with little or no sacrifice in the properties of high-quality molded parts has been developed by the General Electric Company's Chemical Department, Pittsfield, Mass. These new wood flour-filled materials are priced an average one cent per pound below the market price of other general purpose molding powders.

The four compounds—black and brown for compression and transfer molding—have a specific gravity of 1.37, and are said to have flow characteristics, cure time, and water resistance nearly equal to more costly wood flour-filled phenolics.

Although the new materials do not have a high gloss on long-draw moldings and may show a slightly less rigid discharge from the mold, tests by General Electric indicate that they are highly satisfactory for the majority of thermosetting plastics applications.

(Please turn to page 204)



Cash registers ring more frequently in stores that bet on the public preference for packaged products. A recent survey showed 84% of the buying public prefer packaged products.

Retail stores last year bought nearly half a billion

set-up boxes for their own packaging needs to bolster their

117 billion dollar business. Cash in on cash register sales

where it counts—at the point-of-sale—in the package.

Investigate the versatile advantages of set-up boxes for

your product or retail store sales.



NATIONAL PAPER, BOX MANUFACTURERS

AND COOPERATING SUPPLIERS

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load-floating cost-cutting



More stuff handled with less effort and cost when your plant is equipped with Colson trucks. Hand trucks, barrel and drum trucks, platform trucks, dish trucks, Lift-Jack Systems, dollies, wheels and castersall designed for ease of movement. floor saving, extra durability. Less means popularity with workers, profits for you. Write us or consult your phone book for the local Colson office.



Colson Drum Truck model #6055-65, has ballbearing 10" double steel disc type wheels, demountable cushion rubber tires, rugged light-weight tubular steel frame. Chimb hook locks semi-automa-

Call in an *AMGEARS

specialist on your gear problems.

Many of our customers have been able to meet price competition, pro-duce a better product, and effect decided savings in cost by coopera-tion with our engineers.

Write for free case study port-folio of examples where *Amgears know-how of materials and methods have solved gear problems. You may find the answer to your probalready solved here in these case studies or you may spot some new idea that can be employed in the engineering of your product.

This case study portfolio was prepared to help our customers and friends and is furnished without obligation or undue sales effort fol-low-up. Write for your copy today.

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* We specialize . . in all types of gears and gear assemblies for original equipment.

Gears for construction equip-

Automotive and tractor gears. Fine pitch instrument gears.

Gears for farm implements.

Special gears for high speed operation, with shaved or ground teeth. Miter and bevel gears for mining machinery. Spur or helical tooth pump

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AMGEARS, INC. 6633 WEST 65TH STREET, CHICAGO 38, ILLINOIS PHONE - PORTSMOUTH 7-2100



CHEMICAL PROCESS MAKES CENTER-LESS GROUND ALUMINUM MIRROR-BRIGHT

Chemical-polishing (non electrolytic) process for giving mirror-bright finish to aluminum tubing, pipe and round rod of machinable grades that have been centerless ground, is announced by the Technical Processes Division, Colonial Alloys Co., Philadelphia 29, Pa. The finish is developed without mechanical polishing or buffing. Tubing, pipe and rod can be chemically-polished prior to fabrication or machining, but it is preferable to perform the treatment after machining operations.

NEW LINE OF STEEL-WOOD LOCKERS

A new line of steel-wood lockers is announced by Lyon Metal Products, Inc., Aurora, Ill. The entire framework and doors are of steel while all other parts are of steel reinforced masonite. All steel parts are finished in green enamel



The lockers have satin chrome finish recessed handle.

and the masonite remains in its natural brown color. Lockers are made in both single and double tier in standard sizes. Accessories include steel sloping tops and closed bases. The lockers are available without legs where recessing is desired

TO DEVELOP NUCLEAR REACTOR FOR SHIP PROPULSION

The Chicago Operations Office of the U. S. Atomic Energy Commission has announced that a letter contract has been entered into with the Westinghouse Electric Corporation, Pittsburgh, Pa., for the construction of an experimental nuclear reactor to meet specifications for eventual use for ship propulsion. Work under the contract will be carried on in cooperation with the Argonne National Laboratory, major center of the Commission's reactor development program. The Westinghouse Corporation has had extensive experience in atomic energy work.

(Please turn to page 206)



- · VALVES
- · FITTINGS
- · CASTINGS

Here's a technical publication you'll put to real use. It is devoted exclusively to just the type of "meaty inside information" every man concerned with stainless steel valves, fittings, and castings will find of value.

NEWSCAST will feature technical data, application stories . . . reviews of technical literature . . . questions and answers culled from our Service Engineering Files . . .

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THE WORLD'S LARGEST FOUNDRY DEVOTED EXCLUSIVELY TO THE CASTING OF STAINLESS STEEL

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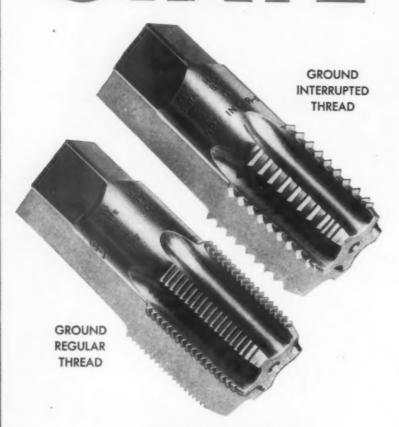
NAME TITLE

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CITY STATE ZONE

PIPE TAPS BY STATE



REGULAR THREAD

High Speed Ground High Speed Ground for Steel Dryseal Taper NPTF High Speed Cut

Carbon Dryseal Straight NPSF

INTERRUPTED THREAD

High Speed Ground High Speed Cut Dryseal Taper NPTF

On Nearby Shelves of Your Industrial Supply Distributor

BAY STATE TAP & DIE COMPANY

MANSFIELD, MASSACHUSETTS

DEVELOP TWO METALLIC COLORS IN POLYSTYRENE

Development of two new metallic colors in Lustrex polystyrene, closely simulating bronze and aluminum, and featured by improved moldability, is announced by the Monsanto Chemical Co., Springfield, Mass. The new colors have the same strength and flexibility of regular polystyrene. Distinctive mottled effects are possible by the addition of black or colors to the metallics, giving the finished product an appearance of greater depth.

INDUSTRIAL DRY CLEANING UNIT USED BY SKF

Illustration shows dry cleaning unit used by SKF Industries, Inc., Philadelphia, who are big users of polishing tape, work gloves and wiping cloths, which it is expected will be the means



It is expected that annual savings running into thousands of dollars will be made by cleaning polishing tape, work gloves and wiping cloths.

of saving thousands of dollars annually by cleaning these items. Here an operator is removing tape which before cleaning was soiled by polishing abrasive, like the tape in the pile at the right.

SAE PUBLICATION SHOWS ADVANTAGE OF FULL HARDNESS QUENCHING

A newly published report of the Society of Automotive Engineers, "Physical Properties as Influenced by As-Quenched Hardness", is said to go a long way toward settling the controversy among metallurgists over the degree of sub-surface hardening needed to get adequate physical properties in a steel part. Prepared by a group of the SAE Iron & Steel Technical Committee, the report presents the first published data of this kind which shows that full as-quenched hardness develops greater physical properties. The report, SP-53, is available from the SAE Publications Department, 29 West 39th St., New York, N. Y. The price is \$1.00 to SAE members and \$2.00 to non-members.

(Please turn to page 208)

Why top purchasing agents are good salesmen, too

PURCHASING agents for leading companies are often as much concerned with selling as with buying! Wherever possible, they buy materials which not only do the job best, but also add valuable sales features to the finished product. This awareness of the sales side of purchasing has made the P.A.'s role a doubly important one in the automotive industry. And it's a big reason why so many outstanding purchasing agents throughout industry specify Timken bearings.

Timken bearings are not only the best tapered roller bearings made: they are the best known! Years of superior performance have made the trade-mark "Timken" mean "top quality" to millions of customers. So the salesman who can point out that his product is equipped with Timken bearings has a head-start on competition that's hard to beat.

Give your product this extra sales advantage by standardizing on Timken bearings. Timken bearings not only help sell your product; they help keep it sold by assuring trouble-free operation, low maintenance cost, and long life. Remember, no other bearing can give you all the advantages you get with Timken bearings because Timken leads in: 1. advanced design; 2. precision manufacturing; 3. rigid quality control; 4. special analysis steels; and 5. consumer preference.

Because every step of the manufacture of Timken bearings is controlled within our company . . . because our vast manufacturing facilities are widely dispersed . . . you will find the Timken Company a supply source of outstanding reliability. The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".

NEW TIMKEN BEARING CUTS RUM-OUT IN HALF!

Until now, the Timken "Zero" bearing has been the last word in bearing accuracy. Now Timken offers industry the "Double-Zero" bearing — twice as accurate as the "Zero"! Maximum run-out of the new "Double-Zero" bearing is only 75 millionths of an inch - balf the 150 millionths run-out of the "Zero" bearing.

What an opportunity for manufacturers of machines where extreme accuracy is essential! Available in standard single row types, up to 10" O.D. Write for further information.

ROLLER BEARINGS



NOT JUST A BALL ONOT JUST A ROLLER THE TIMKEN TAPERED ROLLER BEARING TAKES RADIAL AND THRUST LOADS OR ANY COMBINATION



CRAWLER-TYPE HAND TRUCK WITH BRAKE

"Trak-Truk"is name of new crawler type hand truck with brake announced by American Machine Works, Inc., Racine, Wis. The truck moves on a crawler base or carriage equipped with continuous rubber belts. The load is always carried on the belts ob inting damage to the surfaces over which the truck moves. At the same



The structural design of the truck employs heavy tubular frame stock, formed and welded. Nose plate is of heavy steel plate. Frame cross members are concave.

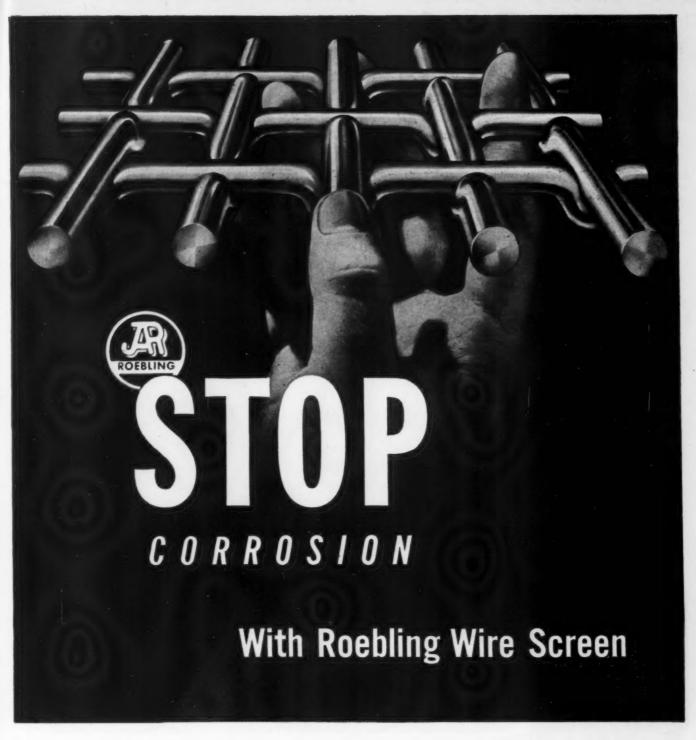
time the continuous belts simplify the movement of loads up and down stairs over curbings, ramps, loading platforms and end-gates of vans or motor trucks. The crawler base may be retracted, and tle truck operated on the lower wheels like any standard two-wheel hand truck. The front wheels of the crawler base are pro ided with automobile expansion type brakes, these being engaged by cable pull on truck handle.

BALL-TILTING MILLING TABLE



A ball-tilting milling table, said to be definitely new, is now being marketed by the Leo G. Brown Engineering Co., 1531 South Sunol Drive, Los Angeles, Calif., after exhaustive research and testing in actual use. The table, illustrated, is made from meehanite semi-steel normalized castings. The calibrated dials are hand engraved, and ball will tilt 30 deg. any angle. The table top is 7½" square, with ¼ x ½" "T" slots for ½" bolts, top being precision ground. Overall height when level is 61/2"; cross feed slide has 6" of travel. The base index is calibrated 360 degrees. The lower base of the table is 8-3/4" in diameter, and the unit has a total weight of 50#.

(Please turn to page 212)



THE RIGHT METAL FOR EVERY NEED

WHATEVER YOUR CORROSION PROBLEM, Roebling screens woven of the *right* metal will lick it once and for all. Depending on requirements, various meshes can be furnished in stainless steel, copper, or brass 80-20. Also available are monel, aluminum, and bronze 90-10. There are two new types of

Hastelloy, "B" and "C," that are highly resistant to sulphuric and chlorine acids.

Besides the corrosion resistance of the right metal, Roebling Roeflat flat construction gives 75% more wearing surface and sets new records of service life. It causes less blinding and clogging than ordinary screens . . . precision openings help assure uniform grading.

You can have Roebling Roeflat in almost any type of weave, such as Roeton, Roeslot or square mesh with openings of %-inch and up. Find out whether you can save screen dollars by using a Roebling screen with the specific corrosion-resistant properties to beat your problems. Write for Catalog W-905. John A. Roebling's Sons Company, Trenton 2, New Jersey.

-- WRITE OR CALL THE ROEBLING FIELD MAN AT YOUR NEAREST-ROEBLING OFFICE AND WAREHOUSE

Atlanta, 934 Avon Ave. * Boston, 51 Sleeper St. * Chicago, 5525 W. Roosevelt Rd. * Cleveland, 701 St. Clair Ave., N. E. * Denver, 1635 17th St. * Houston, 6216 Navigation Blvd. * Los Angeles, 216 S. Alameda St. * New York, 19 Rector St. * Philadelphia, 12 S. 12th St. * Pittsburgh, 855 W. North Ave. * Portland, Ore., 1032 N. W. 14th Ave. * San Francisco, 1740 17th St. * Seattle, 900 First Ave.

ROEBLING

A CENTURY OF CONFIDENCE &

F.E. Myers assures





Unit-Bearing Fan



Washing Machine



Oil Burner



Machine Too



Gas Pump



Hermetic Refrigeration

customer satisfaction with _____

GENERAL ELECTRIC

STANDARDIZED Fractional MOTORS
Horsepower MOTORS

Here's the motor that F. E. Myers & Bro. Co. says helps make customer service a strong selling tool—the G-E General Purpose Capacitor-Start Motor. It is widely used on water-pumping systems, commercial refrigeration and air conditioning compressors, industrial air compressors, material handling equipment, motorized tools, commercial laundry equipment . . . wherever high starting torque, long life, and minimum servicing are required.

The General-Purpose (Type KC) has an open (dripproof) enclosure, 40 C rise, and a solid base. It is immediately available in ratings from ½ to 1 hp; 3450 to 1140 rpm; constant speed; single-phase, 60, 50, or 25 cycles. For more details, call or write your nearest G-E sales office. Apparatus Dept., General Electric Company, Schenectady 5, N. Y.



THEY'RE QUIET

.. AND COMPACT

... AND RUGGED

Sleeve bearings are bored to a mirror-like finish for long-lived, quiet operation. Starting is snappy, yet quiet. Sound design and the use of modern insulating materials has packed a lot of motor into a little space. The sturdy end shields, rigidly support the bearings and the frame itself is all-steel, rolled and machined.

GENERAL



ELECTRIC



Belted Fan



Coal Stoker



Jet Pump



Shaft-Mounted F



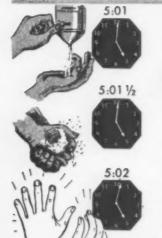
Sump Pump



General Purpose







The dirtiest hands are thoroughly and safely cleaned in one minute with

MAGNUS HAND CLEANER

No Gritty Abrasives
 No Logged Drains
 No Useless Emollients
 or Medicaments
 Fast—Thorough—Comfortable
 Free-Rinsing
 Easy on the Skin
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 Particularly with Magnus
 Dispensers
 Made in Three Grades: Heavy,
 Medium and Superfine

The SAFE, ECONOMICAL CLEANER for your wash rooms you've been looking for. Write for free samples.

MAGNUS CHEMICAL COMPANY • 93 South Ave., Garwood, N. J.
In Canada—Magnus Chemicals, Ltd., 4040 Rue Masson, Montreal 36, Que.

Service representatives in principal cities

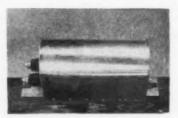


RUBBER-PLASTIC COATED WORK GLOVES

A work glove coated with a synthetic rubber-plastic material known as Neox, which is said to give at least 25% longer wear, is being marketed by the Edmont Manufacturing Co., 540 Orange St., Coshocton, Ohio. The gloves are recommended for the handling of all materials, wet or dry, sharp or abrasine, and maker states that they afford full protection against acids, caustics, oils, greases, and many solvents. They are available in knit-wrist or gauntlet styles.

SECONDARY CAPACITOR FOR RESIDENTIAL AREAS

A new 3-kvar secondary capacitor, designed for use on 240-volt house feeder circuits where the use of such devices could not previously be justified for economic reasons, has been announced by the Transformer and Allied Products Division of the General Electric Company.



Additional units can be added if more than 3-kvar capacity is required at any one location.

Ad antages of the new unit include released distribution transformer capacity, reduction in distribution transformer and secondary losses, and reduction in voltage drop between first and last customer on the feeder when capacitors are located only on the secondaries furthest out on the feeder. Small in size, approximately 7" x 10" x 20", and light in weight, it is designed for "on-the-pole" mounting.

DUAL PURPOSE OIL FOR HYDRAULICALLY OPERATED MACHINE TOOLS

1 1 1

A new dual-purpose oil is being introduced by Sun Oil Co., 1608 Walnut St., Philadelphia, Pa., for use in hydraulically operated machine tools that pressure feed away lubricant from the hy-draulic system. The name of the new oil is Lubeway, and tests in Sun Laboratories and by machine tool builders show that it has all the stability and nonsludging characteristics of a good hydraulic oil; and also possesses the metal wetting and extreme presure qualities of a good way lubricant. It is available in two viscosities-Lubeway 150 and Lubeway 300, recommended for hydraulically operated machine tools such as milling machines, grinders, and boring machines -that pressure-feed way lubricant from their hydraulic systems.

(Please turn to page 214)





Just off the press, the book illustrated above will show you why the highly mechanized facilities of Forest City Foundries PLUS skilled manpower may be just the answer you need, to bring down your production costs.

With our extensive new conveyor systems and other new machinery, and our highly skilled workers . . . with two complete foundries . . . it is quite likely that Forest City Quality Castings and Better Service can produce substantial savings for you.

If you have not received a copy of the booklet, write for it today. Or, if you wish, our representative will call to discuss your gray iron castings requirements and our ability to supply them—economically!

Forest City is geared to the making of a wide range of gray iron castings — S.A.E. or A.S.T.M. Specifications — Plain or Alloyed.

"MAKE IT BETTER WITH GRAY IRON"



BOOKLET ON WROUGHT IRON FOR MARINE APPLICATIONS

Performance of wrought iron in more than 100 different applications in the marine industry, including ships, structures and shore installations, is described in a 64-page book just published by A. M. Byers Company, Pittsburgh, Pa. The book is profusely and interestingly illustrated. In its opening chapters, the various types of corrosion encountered in marine service are discussed. Methods of controlling corrosion as well as the characteristics of and specifications for wrought iron are listed. Recommended procedures in the fabrication and painting of wrought iron structures and hulls also are set forth.

A copy of the book is available without charge.

PALLETIZING BAGGED MATERIALS

The accompanying illustration shows method of handling bagged materials for shipping, at plant of the International Graphite and Electrode Corp., St. Marys, Pa., maker of graphite electrodes and



Steel strapping serves to hold the

anodes and granular graphite. The bags are stacked square in pairs on wooden pallets, each perpendicular to the adjacent pair. An adhesive between the bags helps prevent slipping. The top layer of bags is steel strapped and serves to hold the entire load firm. The palletizing cuts loading and unloading time and reduces bag damage to a minimum.

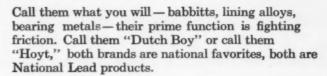
HUGE DEPOSITS OF BAUXITE IN CARIBBEAN AREA

Immense deposits of a new type of high quality bauxite (aluminum ore) have been discovered on the islands of Jamaica, Haiti, and Hispaniola in the Caribbean, according to O. C. Schmedeman, vice president and chief geologist. Reynolds Mining Corp., Little Rock, Ark., a subsidiary of Reynolds Metals Co. He states that the discoveries are particularly significant in view of the virtual exhaustion of high-grade reserves in the United States, the four-fold expansion of the industry during the past seven years, and the general inadequacy of the Guiana reserves. The high grade reserves drilled and sampled to date total at least 350,000,000 tons, 90% or more of which is in Jamaica. This is said to constitute the world's largest proved reserve of present economic significance.

(Please turn to page 216)



WITH A "NATIONAL" REPUTATION



Serving as and where they do, bearing metals must be expected to take a beating. Whether the punishment is light or heavy depends on the service conditions to which the lining is exposed and, of course, upon how wisely the specific alloy was picked for the specific purpose.

Experienced users know that National Lead's "Dutch Boy" and "Hoyt" lines of bearing metals encompass a type of babbitt for every purpose. They also know that these alloys are designed to do three important jobs: 1. To obtain and maintain tight adherence to the shell. 2. To present a smooth, pit-free surface that takes kindly to oils and greases. 3. To stay on their friction-fighting, shaft-protecting jobs though lubrication fails or grit and waste edge in to foul up their normal function.

When your bearings need new linings . . . look to National Lead.

NATIONAL LEAD COMPANY

111 Broadway, New York 6, N.Y.

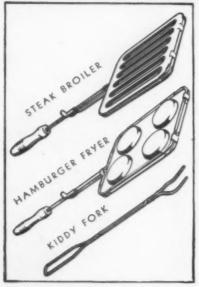


Offices and Plants in Principal Cities
Pacific Coast: Morris P. Kirk & Son, Inc., Los Angeles
Canada: The Canada Metal Company, Ltd. Toronto

For campfire fun!



made with KEYSTONE WIRE



*U. S. Manufacturing Corp., Decatur, Illinois

U. S. Picnic Accessories give added enjoyment to the art of campfire cookery.

You'll notice that wire is of prime importance in the construction of these items. For this reason the manufacturer specifies Keystone wire that has an **extra brite finish** for added sales appeal . . . proper ductility to withstand severe twisting operations . . . and the necessary strength to hold its shape under rugged conditions.

Manufacturers know they can depend on Keystone wire to fulfill every industrial wire need.

MUSIC SPRING WIRE

SPECIAL ANALYSIS WIRE for all industrial purposes

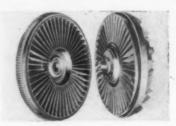
KEYSTONE STEEL & WIRE COMPANY
PEORIA 7, ILLINOIS

NON-BAKING TWO COLOR HAMMERED FINISH LACQUER

A new lacquer that gives a hammered finish in two colors, applied in one operation, and designed primarily for use by manufacturers who do not have facilities for baking, is announced by the Sherwin-Williams Company, Cleveland, Ohio. It is being marketed as "Lacquer Dimenso". The product is ready to use as it comes from the package. It is applied by spraying and air dries hard in approximately 20 minutes. Finish is said to be suitable for use on wood, material or plastic surfaces of products that will not be subjected to high temperatures in service use. It is furnished in aluminized and regular colors, and is packaged in drums and five gallon containers.

FLUID COUPLING AVAILABLE ON INDUSTRIAL ENGINES

Gyrol fluid coupling, one of the features of Chrysler automobiles, is now available complete with clutch, clutch housing and either a 3 or 4 speed transmission on Models 5, 6, 7, 8, and 12 of the Chrysler industrial engine lines, according to J. C. Hammelef, manager, Industrial Engines Divn., Chrysler Corporation, Detroit, Mich. According to Mr. Hammelef, the gyrol fluid coupling provides a safety cushion between the source of power and



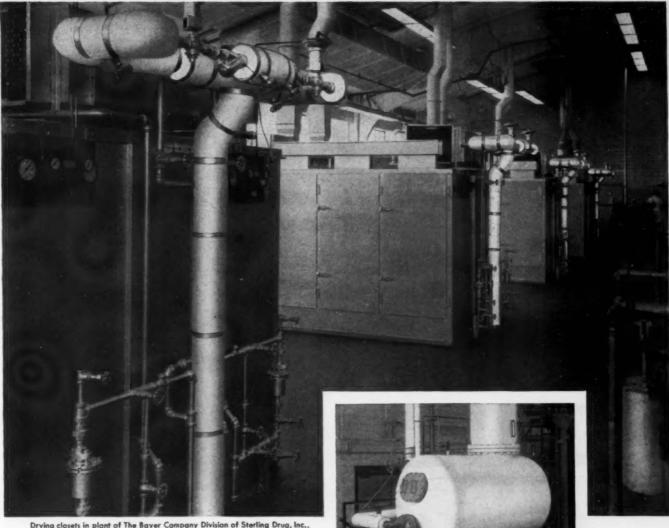
Chrysler Gyrol Fluid Coupling

the load. It prevents shock load to expensive equipment and engine stalling. Other advantages of the fluid coupling are longer clutch life, and the ease of handling a particular piece of equipment when jockeying into position. The coupling permits the engine to be accelerated close to the torque peak with the output shaft turning at a lower speed. The necessity for declutching for brief periods when operating the engine without load is eliminated. In these cases the brake is applied and the engine allowed to idle, the coupling, meanwhile, slipping to permit free turning of the engine.

7 7 7 PHENOLIC RESINS FOR BONDING WOOD WASTE

Durez Plastics & Chemicals, Inc., of North Tonawanda, New York has just announced the development of several closely related phenolic resins especially formulated for use in bonding wood waste, such as sawdust, for the production of building board or molded shapes.

(Please turn to page 218)



Drying closets in plant of The Bayer Company Division of Sterling Drug, Inc., Trenton, N. J. The 60-lb. steam pipes are covered with K&M "Featherweight" 8.5% Magnesia Insulation, 2 inches thick, canvas pasted and banded.

Where temperature control

is important —

Nature made Asbestos... Keasbey & Mattison has made it serve mankind since 1873



Reclaim Solvent Still in the Trenton plant. Tank and tower are insulated with 2-inch 85% Magnesia Block, finished with asbestos cement; steam line with 2-inch thick 85% Magnesia; return line with Standard Thick 85% Magnesia.

K&M "Featherweight" 85% Magnesia Pipe Insulation

In the Trenton, N. J. plant of The Bayer Company Division of Sterling Drug, Inc. temperature control is vastly important. Insulation of *known* dependability is essential.

K&M "Featherweight" 85% Magnesia Pipe Insulation was used because in a wide variety of applications it has proved efficient and durable. It combines the high insulating properties of basic Carbonate of Magnesia with the proper amount of clean Asbestos Fibre as a binding element. It is extremely light in weight, easy to apply, fire-proof, mechanically strong. And is supplied in a wide range of sizes and weights.

K&M Distributors, located strategically throughout the country, are experts on the application of K&M insulating materials. Let them help you make important savings in your plant. Write us for further information.

KEASBEY & MATTISON COMPANY · AMBLER · PENNSYLVANIA

THE RIGHT BALL



Not only in precision ball bearings, but in countless other places, Strom has found that the right ball will do the job better. Maybe your problem can be solved with the use of the proper ball. Why not take it up with Strom. Strom has been making precision metal balls for over 25 years for all industry and can be a big help to you in selecting the right ball for any of your requirements. In size and spherical accuracy, perfection of surface, uniformity and dependable physical quality, there's not a better ball made.



more than

80

Oakite
Materials
to solve
your cleaning
problems

You After Bargains?

I F you believe what Webster says, you're after something over and above what is stipulated. Apply his definition to us and you are after helpful, dependable Oakite Service over and above quality cleaning materials.

In that kind of a bargain, you not only get materials for effective, simplified production and maintenance cleaning, but the kind of service that rolls up its sleeves and works out kinks in cleaning procedures; service that puts you on the track to countable per unit savings.

Next time you think about cleaning material bargains, call in your neighborhood Oakite Technical Service Representative, or write to Oakite Products. Inc., 54 Thames St., New York 6, N. Y.

Technical Service Representatives Located in Principal Cities of United States and Canada

OAKITE

SPECIALIZED INDUSTRIAL CLEANING

MATERIALS . METHODS . SERVICE

(Continued from page 216)

These resins are for use in the dry mix process and are in powdered or pulverized form. The particular resin required and the percentage of resins to wood waste used (average range from 5% to 15% of the weight of waste) are dependent upon processing, type of wood waste, and color and strength or density desired in the finished board. Resin and wood waste mixes require hot pressing at 100 to 500 psi at around 325° F. Samples of these Durez resins are available from the manufacturer upon request and upon receipt of data mentioned, ie: processing, type of waste, etc.

AUTOMATIC CASE UNPACKER AND DUMPER

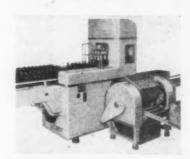


Illustration shows automatic case unpacker and dumper developed by Edward Ermold Co., 652 Hudson St., New York 14, N. Y. The machine removes standard containers from cartons, deep or shallow cases or trays, and it also takes filled or partially filled cases and discharges the containers onto a continuous conveyor in multiple rows, discharging empty cases from either the right or the left side, depending upon requirements. The manufacturer states that after initial settings are made, the machine automatically refuses odd size or badly damaged cases, refuses cases containing overlength bottles, and leaves broken bottles in the case for discard. It accepts partially filled cases and the grippers have sufficient range to assure pickup of tilted or misaligned bottles, it is said.

The basic machine consists of the automatic unpacker, with the dumper available as auxiliary equipment. The function of the latter is to overturn empty cases in order to remove broken glass, bottle caps and other debris after which it places the cases on a conveyor in an upright position. Literature is available.

NEW GLASS PHENOLIC LAMINATE

The Panelyte division of St. Regis Paper Co., 230 Park Avenue, New York, N. Y., announces the production of a new glass phenolic laminate known as Grade 170. It is said to be extremely low in water absorption with a value of .06 per cent, low in power factor, and exceedingly high in flexural and impact strength, as measured by ASTM methods. It is said that the new grade may elim-

(Please turn to page 220)



Fish cakes by the TON

Fish for the dinner table... by-products for industry, agriculture, medicine! It takes some 4 billion pounds of fish each year to satisfy America's tremendous demand. More than 60,000 commercial fishermen and nearly 6,000 vessels are needed to bring in the catch. Many of these vessels depend upon Exide Batteries for engine cranking, radio, running lights, navigating instruments and emergency services.

Exide Batteries also supply power for vital services on ocean liners, freighters, tankers, government vessels, tug boats, tow boats, pleasure craft. They are used by railroads for cranking giant Diesel engines on locomotives, for lighting and air-conditioning passenger cars, and powering signal systems.

They are relied upon by telephone and telegraph companies, radio and television stations and electric utilities. They supply motive power for battery electric industrial trucks, mine locomotives and shuttle cars. And on millions of cars, trucks and buses they give daily proof that "When it's an Exide, you start."

Information regarding the application of storage batteries for any business or industrial need will be gladly supplied upon request.

THE ELECTRIC STORAGE BATTERY
COMPANY • Philadelphia 32

Exide Batteries of Canada, Limited, Toronto

"Exide" Reg. Trade-mark U. S. Pat. Off.



1888 . . . DEPENDABLE BATTERIES FOR 61 YEARS . . . 1949



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Etched or lithographed, Ecoa quality name plates are themselves economical because they are permanent marks of distinction which add sales appeal to your product. They look better—longer. Ask us to quote on your designs—or if you

wish, our Art Department is available to assist you in the design of your name plates. You can save money, too, by using one of nearly 5000 shapes and sizes for which we have dies in stock.

FREE BOOK If you or your engineering department can use this book, which shows the shapes and sizes of nearly 5000 dies we have on hand, write for it on your letterhead. Name plates made in these shapes and sizes save the cost of special tools.





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SUBSIDIARY OF DODGE MFG. CORPORATION, MISHAWAKA, INDIANA

(Continued from page 218)

inate the necessity of anti-fungus treatments and other special handling now required for use in equipment in tropical climates and under high humidity conditions. It will be produced in standard sheet sizes of 36 x 36 and 36 x 48 inches, natural color, semi-gloss finish, thicknesses ranging from 1/32nd to 2 inches, with a standard NEMA tolerance for Grade G-3. Tensile strength 52,000; flexural strength, 69,000; bonding strength, 1,900; impact strength, 37 (flat), 18 (edge); dielectric strength 580, power factor .006; dielectric constant, 4.45; loss factor .027.

ASBESTOS SIDING PREVENTS FIRE DAMAGE

This interesting picture shows how the asbestos-cement roofing and siding on building of the Buffalo-Springfield Roller Co., Springfield, Ohio., saved the building and its contents from damage by



The asbestos protected plant was merely scorched by the adjacent fire.

fire that entirely destroyed adjacent plant of the International Steel Wood Corporation,—just four feet away. The interior and contents of the Roller Company's building, constructed of the Philip Carey Manufacturing Company's Careystone corrugated asbestos materials, were in no wise damaged and full scale production was maintained.

NEW FIRE RETARDANT PAINT WITHSTANDS 2000°F FLAME

1 1 1

Flame-Seal is the name of a new fireretardant paint and coating that is also non-toxic now being introduced by the Stallton Chemical Corp., 8-14 37th Ave., Long Island City 1, N. Y. The maker states that when unpainted lumber is protected with a coating thereof, the wood can withstand a 2000°F. blowtorch for 30 minutes without flame spread. It is stated that when fire attacks wood coated with Flame-Seal, the paint undergoes a complete physical transformation, forming a white crust which creates a hard protective wall at least eight times the thickness of the original coating. Sustained exposure to the intense heat of a blow-torch flame on one spot for more than 30 minutes will result in some charring, but at no time will the Flame-Seal coating support combustion, it is said. Claim is also made that the new paint is moisture-proof and ter-

(Please turn to page 222)

Toker

... inside your local Chase Warehouse.

You'll see mill products galore. You'll see quantities of brass and copper tube, sheet, wire, rod . . . and in addition, miscellaneous products . . . bearing bronze, welding rods, brass and bronze bolts . . .

That's why . . . when production lines can't wait . . . it will pay you to call Chase. Your local Chase warehouse (one of 22 from coast to coast) can supply you at once and can also arrange to have your really big orders promptly delivered from the mills.

Depend on this handy ordering system for all your copperalloy needs. Remember, Chase service is as close as your phone.



Chase,

the Nation's Headquarters for BRASS & COPPER

SUBSIDIARY OF KENNECOTT COPPER CORPORATION

THIS IS THE CHASE NETWORK ... handlest way to buy brass

ALBANYT ATLANTA BALTIMORE BOSTON CHICAGO CINCINNATI CLEVELAND DETROIT HOUSTONT INDIANAPOLIS KANSAS CITY, MG. LOS ANGELES MILWAUKEE MINNEAPOLIS NEWARK NEW ORLEANS NEW YORK PHILADELPHIA PITTSBURGH PROVIDENCE ROCHESTERT SAN FRANCISCO SEATTLE ST. LOUIS WATERBURY (findicoles Soles Office Only)



- MATERIALS
- MAN-HOURS
- MONEY

with the . . .

RIGHT

Select exactly the right semitubular, split rivet, or coldheaded fastener from Milford's complete line. You'll find it



Then use the right rivet setting machine for your application. One of Milford's 15 basic machines is sure to solve your particular problem . . . and slash your production costs!

Write to Dept. B

RIVET & MACHINE
C O M P A N Y
MILFORD, CONN.
ELYRIA, OHIO

HATBORO, PENN.

(Continued from page 220)

mite proof, and that it will not craze, chip or crack. It can be washed with any standard soap or washing powder without lessening its fire-retardant effectiveness. The paint is non-toxic.

1 1 1 NEW MINIATURE DRILL PRESS

New six-inch, highly accurate drill press is anounced by the Cobb Precision Company, Hollywood 38, Calif. Using a standard Jacobs chuck, it takes drills from 0 to 5/32". Adjustable clearance, chuck to fixed table base, is 0-7". Spindle feed



Precision and fine workmanship feature the new Cobb miniature drill.

of 1" has solid, sensitive feel. Rheostat control, foot operated, permits speed to be adjusted from 6000 rpm down to zero. The unit employs an easily detached 1/10 hp double scaled ball bearing ac-dc motor. The overall height is 12", and the tool weighs 18 lbs. with motor.

NEW SMOKE DETECTOR NOW AVAILABLE FOR INDUSTRIAL PLANTS

A single unit photoelectric smoke detector for early detection of incipient fires in hazardous plant and warehouse areas, has been developed by Walter Kidde & Co., Belleville, N. J. The photoelectric smoke detector, it is stated, often betrays the presence of smoke before thermostatic or heat actuator alarms or devices are affected. The principles of the unit are similar to those of marine type detectors the company has been building for some time. A continuous sample of air is drawn from the protected space through an individual piping system into an analyzer tube, where it passes through a filter screen to remore dust and dirt, then into a beam of light focused on a photoelectric cell. Smoke in the air sample cuts down the amount of light reaching the cell and sets off an alarm connected through a circuit to a control panel. This panel is the nerve center of the detector. It not only transmits fire alarms but also gives warning of mechanical and electrical disturbances within the apparatus.



Want to zip through the toughest metal cutting jobs in jig time? Of course, who doesn't?

Then be sure you're using a Star hack saw blade. They're designed and made to make cinches out of tough cuts. Only the finest steel is used — automatic machines shape teeth precisely — special heat treatment provides extra blade strength. As a result you get a faster, cleaner cutting blade that lasts longer.

A complete Star line is made for all types of metal and plastics cutting and for either hand or power equipment. Ask your dealer to show you Star.

AT YOUR DEALER'S NOW!

Your free copy of Star's booklet, "METAL CUTTING" and the new Star Wall Chart. Ask for these helpful guides to better selection, use and care of your hack saw equipment.



CLEMSON CLEMSON BROS., INC. MIDDLETOWN, N. Y.

Manufacturers of Hack Saw Blades and Frames, Metal Cutting Band Saw Blades and the Clemson Model E-17 Lawn Machine.



Artist - Cecil West, native of Tennessee

TENNESSEE — annual purchases: \$13/4 billion — mostly packaged.

CONTAINER CORPORATION OF AMERICA





a dotted line

Day after day, this typist turns out almost twice as many statements, invoices, purchase orders, as before. Office overhead is slashed. How? The dotted line does it. That magic dotted line holds together sets of Moore's continuous forms. Work flows in an unbroken stream through typewriter, billing or tabulating machine.

Moore continuous forms bring assembly-line speed and economy to your office - save up to 95% of the time wasted by old-fashioned methods.

For a medium-size newspaper in Michigan, Moore designed continuous interleaved invoices that speed up the work and can save about \$3600 each year in postage and envelopes alone! Your business can shave costs, too. Call your local Moore office—in over 200 cities, nearly everywhere. Or write any Moore factory: Niagara Falls and Elmira, N. Y.; St. Paul, Minn.; Denton, Tex.; Los Angeles and Emeryville, Calif.; Salem, Oregon. Also sales offices and factories across Canada.



BUSINESS FORMS, INC.

The only national company that offers a complete range of modern business forms - THE RIGHT **BUSINESS FORM FOR EVERY FORM OF BUSINESSI**







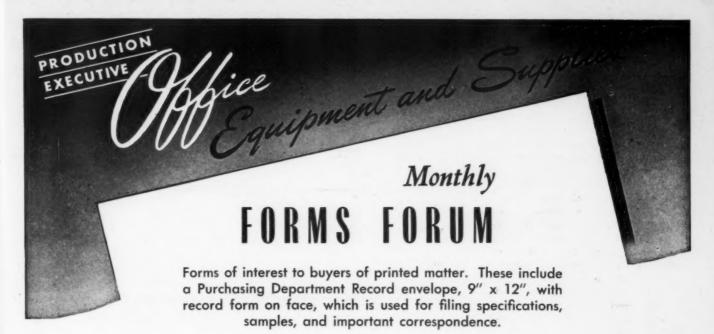






us Register Forms and Registers

Sales Books for Every Business Operation



ere are a number of purchasing department forms that buyers of a large number of forms and printing will find of particular interest. They were supplied for use in the Forms Forum by Harold H. Frair, purchasing agent, Glens Falls Insurance Company, Glens Falls, New York, who, incidentally is national director of the Purchasing Agents Association of Eastern New York.

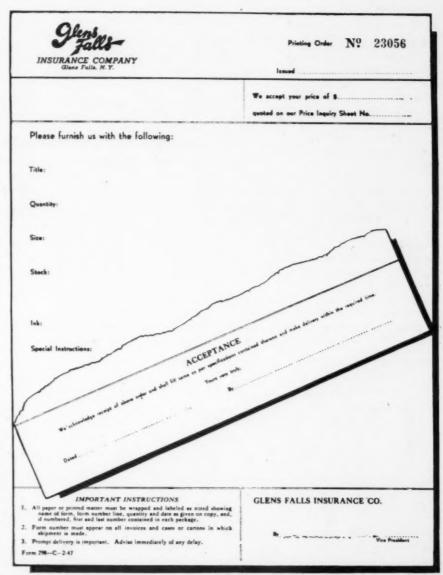
The greater portion of the purchase orders issued by Mr. Frair's department are for printed matter, and hence various of the forms are especially designed for that type of procurement; at the same time they may be used for the purchase of equipment and supplies.

In addition to the large home office, at Glens Falls, N. Y., the company has some one hundred branch and service offices throughout the United States and Canada. The company and its affiliates have facilities for the underwriting of practically every form of insurance except life insurance. The affiliated companies include the Glens Falls Indemnity Company, the Commerce Insurance Company, and the Glens Falls Corporation. The "producing organization" of this group comprises more than 10,000 agents.

Obviously these operations entail the use of a large volume of printed matter—forms, reports, instruction sheets, stationery, office supplies and equipment, and maintenance, operating and repair supplies. More than 4000 items are carried in the warerooms at the home office in Glens Falls, from which the needs of the branch offices and the ten thousand agents are supplied.

In addition to the purchasing department, Mr. Frair has jurisdiction over the supply department, the first class mail department and the photostat department Every day, by parcel post and express,

(Please turn to page 226)



"Printing Order". The actual size is 8%" x 10%". It is made up in quintuple, two copies being sent to the supplier, one of which is an "Acceptance" copy. The order provides for acceptance of price "quoted on our price inquiry sheet."

Insert shows lower part of "Acceptance" copy.

(Continued from page 225) more than a ton of printed matter is shipped to the branches and agents.

By far the most original, useful and efficient form is the one called Purchasing Department Record. It is a 12" x 9" envelope of jute tag stock. Its face serves as a complete record of purchase. Inside of the envelope is placed a copy of the order with specifications, samples, important correspondence, any proposed changes for reorder, or a flag not to reorder. In addition, any change or discontinuance of a form is recorded on the filing face of the envelope for the purpose of having a double check. By means of this simple but clever device a complete record is available in a single file. With inquiries pouring into the Purchasing Department by phone and by personal call, the amount of time saved is tremendous; furthermore, the quick service rendered and the efficiency displayed is a big factor in building good will for the Purchasing Department

A Complete Record

When forms are ordered, a tissue of the latest order showing the details and specifications, that are such a vital part of a printing job, is filed in the envelope when delivery is posted thereon. In the event the envelope is used for other than printing jobs, it provides a convenient place for the filing of descriptive leaflets, price sheets or small catalog and bulletin material.

The request for quotation or inquiry form on letter-size stock and carrying the heading "This is Not an Order" is sent to vendors in duplicate, on white and pink stock respectively, the pink copy being returned to the Glens Falls Company with quotation and delivery information, the original or white copy being retained by the vendor.

Two types of purchase order forms are used. One of these, entitled "Printing Order", is on $8\frac{1}{2}$ x $10\frac{7}{8}$ paper stock. It will be noted that the order specifically pro-

Glens Jalls	V INSURANCE C Glons Falls.	OMPANY N. T.	Price Inquiry Nº 5751		
Gentlemen: Please quote p	THIS	IS NOT AN O	RDER		
Quantity	Fern No.		Hame of Form		
		Description of Form			
INK:	TIONS:				
		Yours very truly,			
			NS FALLS INSURANCE COMPANY		
			By Vice President		
		QUOTATION	Date		
In replying to	above we quote price	of \$	in accordance with above specifications		
delivery to be made :	within days o	fter receipt of order.			
		Yours very truly,			
2. Please sign and		is sheet, retaining original for your files.	tod, and labeled on and iif each package.		

Request for quotation form. This is on letter-size stock, two copies (white and pink) being sent to suppliers, the pink copy being returned to the Glens Falls Company.

vides for acceptance of price "quoted on our Price Inquiry Sheet No.—." Two copies are sent to the supplier, one white and one canary color, the latter being an acceptance and acknowledgment receipt which is returned by the supplier.

The other Purchase Order form is a small sheet 5" x 8" which is referred to as the local general purchase order. It is used exclusively for the purchase of main-

tenance and operating items that are obtainable locally.

At the Glens Falls home office, the various departments order their miscellaneous office supply requirements from the supply department on the "Requisition on Supply Department," a 4½" x 7" form on goldenrod stock. A special form known as Form 10, "Order for Photostat (Please turn to page 228)

THIS FORM	REPLACES	NO			LOCATION OF	FORMS		
RIMMED SIZE	ELEC	CTROS		576	DCK		INK	SPECIAL INSTRUCTIONS
сэлэдан	CHRESTIFF	RECEIVED	QUANTITY RECEIVED	COST PER 1808	TOTAL COST	PAINTER		REMARKS

The Purchasing Department Record envelope, size $12'' \times 9''$, jute tag stock. Form on face serves as a complete record of purchase. Specifications, samples and important correspondence are filed therein. Mr. Frair states it has proved a very efficacious time saver.



Expect an exciting *NEW*, delightful typing experience . . . from the moment your De Luxe Underwood arrives.

And watch your boss' eyes light up when he sees the crisp, clean work you do. Besides, you'll find it easy to do more work . . . with less fatigue.

Just LOOK at the new typing advantages you'll have over other secretaries:

New ... full ten inch writing line, on standard carriage width (one inch more than before).

New ... machine enclosed for quieter operation and protection against dust and dirt.

New . . . the most pleasing touch ever developed in a standard typewriter.

New modern styling . . . Finger-Form keys. New Drop Line Space Lever for an easy, fast, and positive carriage return.

New deeper Paper Table and larger Lateral Paper Guide . . . for faster, more accurate insertion of paper.

New improved Variable Line Spacer and Cylinder Knobs . . . larger and deeper threaded . . . permit easier and more accurate aligning, both vertically and horizontally.

New Removable Platen. (Softer platen for normal typing and quiet operation. Harder platen for manifolding and heavy duty.) Gives added versatility to machine.

New non-glare Underwood gray finish.

Also, you'll have on hand all the helpful Underwood features you've always enjoyed... including your old friend Rhythm Touch and the handy front-controlled Self Locking Margin Stops!

Be sure your boss orders the new Underwood De Luxe. Get a demonstration today.

Underwood Corporation

Typewriters . . . Adding Machines Accounting Machines . . . Carbon Paper Ribbons and other Supplies

One Park Avenue New York 16, N. Y.

Underwood Limited, 135 Victoria St., Toronto 1, Canada Sales and Service Everywhere

UNDERWOOD . . . TYPEWRITER LEADER OF THE WORLD



"I want to talk to you! About the smoothest, speediest filing system this office ever had with that SEA FOAM BOND you recommended...



"For streamlining our office system . . . for getting us a thin business paper that comes clean with erasures—and even makes 14 clear carbons in one typing. The girls love it.



"SEA FOAM'S thinness cuts our file space in two . . . and every sheet stands up, findable, in the files. It really likes hard handling, too. You're the

BEST P. A. WE'VE EVER HAD!



America's Favorite Lightweight Office Paper

Sold by leading paper merchants and stationers nation-wide.



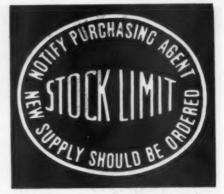
(Continued from page 226)

Work" is used by various departments for ordering photostats of forms and other material that may be copied.

As is to be expected, a company of this kind uses hundreds of typewriters, and a special Kardex form headed "Factory Invoice Date," etc., is used for recording the serial number and the original purchase date of each typewriter, and repairs that may be made during the period in which the machine is used before being traded in toward a new one.

Also of interest is a special form for keeping record of inventory of furniture in the home office and the branch offices. This is a Kardex form which carries four hanging sheets on an "office information sheet", three of which are for keeping record of three specific types of furniture, namely, Chairs, Desks, and Filing Cabinets, and a Miscellaneous sheet. The set provides a complete record of office furniture and equipment in a given office.

Another of the cards reproduced is

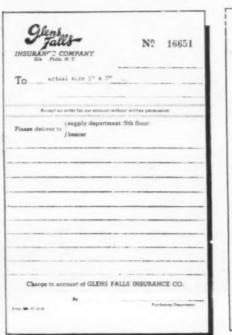


Two types of red "Stock Limit" stickers are used. One is sauare, $4\frac{1}{4}$ " x $3\frac{3}{4}$ ". The other is a small oval $1\frac{1}{2}$ " wide.

entitled "Name of Form". This is used by some of the larger branch offices for maintaining stock records on a maximumminimum basis.

Obviously the maintenance of adequate stocks of contracts and the numerous other forms is of paramount importance, and to obviate the possibility of stocks

(Please turn to page 230)



	Order !	for	
Pt	notostat	Work	
	1.0		
form to be copied	arrial si	ac 51" x 8-)/1	(4)
the under only?	B	inth sudm*	
iumber of copies re	equired		
to the same was as	ongoal?		
To be reduced in m	se to		
To be increased in a	inge to		
Negative (white on	black)		
Positive (black on to the Die not rose)		is swisse absolutely on he rout	occopy
Wanted		before	M.
Name of departmen	nt.		
	by		
Date			
DO NOT	FOLD	ORIGI	NAL
Pirase ontiripat	o your areda so o	early in the day so p	osolbie.
Fee. 10 K-10-46			

The form at the left is used for the local purchase of maintenance and operating supplies. The one at the right is an intra-office order form for photostat work.

Detailed record of the hundreds of type-writers in use is kept on this form.

		PACTORY INVOICE BATE	PACTORY ORDER N	O. OR INVEISE NO.
LIST PRICE	DISCOUNTS	TRADE IN	BALES TAX	HET COST
REPAIRS-DATE, IT	EM AND COST			
MAKE	MODEL	SERIAL NO.	DEPT, OR CITY	COMPANY

Help Your Boss Climb Out of The Ditch-

You know top management hasn't time, these days, to dig for facts. They need accurate operating records . . . on time.

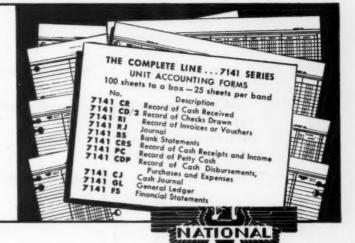
How can you help provide this kind of record-keeping "service" . . . make your record-keeping departments' work faster, easier, surer? Get our new 100-page catalog — "Business and Accounting Records". This catalog describes and illustrates (in color) the full NATIONAL line of business records, record-keeping accessories and exclusive NATIONAL features that help provide top record results. Call your stationer or write direct. \$1.00 per copy.



For Example -

NATIONAL Unit Accounting Systems for Flexible Recording, Easy Summarizing

These forms are simple, clear, easy to work with even for untrained help. They save accounting time... provide instant analyses and summaries... save expense of special print forms... and are adaptable to any business, large or small.



Depend on National

for Record-Keeping Items that Help You Provide

Accurate Records—FAST

NATIONAL BLANK BOOK COMPANY, HOLYOKE, MASS. New York Chicago Boston San Francisco

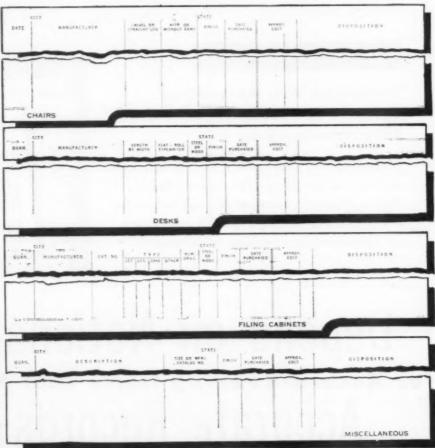


(Continued from page 228) getting too low, or running out, Mr. Frair devised a simple system that he states has proved a time and money saver, which eliminates that danger. When printed matter of any kind is stocked in the sup-

eliminates that danger. When printed matter of any kind is stocked in the supply department, on shelves or on skids, a certain portion of each item is stock limited, the percentage varying from 20% to 33% or even more, depending upon usage and lead time necessary for replenishment. When the identified stock limit package of an item is reached, the identifying label on the end of the package is torn off by the stock clerk, note (Please turn to page 232)

OF JE	PICO	Si4e 6" x	4"			FORM NO.	-
BATE DRDERED	QUANTITY 0906860	DATE BECEIVED	BECEIVED	DATE GROENED	QUANTITY DRDERED	DATE RECEIVED	GUANTITY BECEIVED
		-	-		-		
					-		
	-				-		
	-						
-	-				-		
			-				

This "Name of Form" card is used by some of the larger branch offices for maintaining stock records on a maximum-minimum basis.



Inventory of furniture in the home and branch offices is kept on an "office information sheet" which consists of Kardex form with four overhanging sheets. These provide detailed record of furniture and equipment in a given office.



bring your layouts to life:

print on ... TICONDEROGA OFFSET

The food looks good enough to eat—so clean and color-true is

the reproduction you get on Ticonderoga Offset! A quality paper

for lithography or gravure, for single or multiple-color

presses, for long runs demanding faithful reproduction with

economy. On any offset job where you want No. 1 results, specify this No. 1 offset paper!

International Paper Company, 220 East 42nd Street, New York 17, N. Y.



INTERNATIONAL PAPERS

for Printing and Converting

"We turned

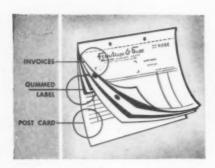
THREE big jobs

into

ONE small job

with

UARCO combined forms



Here it is . . . the UARCO E-Z-Out Form that turned three jobs into one. Top three sheets are invoices and office copies, varicolored for spot identification, one punched to slip into binder. Next is the gummed label, perforated for quick removal. And finally the business reply card, perforated and printed on both sides. The UARCO E-Z-Out is a complete set, glued together, with carbons preinserted. Completed, it separates with one swift motion.

It used to be a big job for three girls—one typing invoices; another, gummed labels; and the third, business reply cards.

Today one girl does it all—in one writing—on a single set of UARCO forms. No carbon shuffling ... no confusion ... no delay ... it's just a small job now!

The advantages of combining forms are not limited to any type or size of business. Doubtless your own business offers many opportunities to save.

It costs you nothing to find them
—merely call your Uarco Representative.

UARCO INCORPORATED

Chicago, Ill.; Cleveland, Ohio; Oakland, Calif.; Deep River, Conn. Offices in all principal cities



Business Forms

Serving business for more than fifty years







(Continued from page 230)

made of the quantity of the item that remains, and report thereof sent to the purchasing department. And to keep the the purchasing department on its toes, the next time material is taken from that stock a "tickler" notice is sent to the purchasing department that the stock limit has been reached and delivery on that item expedited.

Currently more than 4.00 forms and

Please furnish Approved by This form to be used ONLY for supplies as House Office					
WANTITY	F0898 NO	Descentrum.			
Form 36		OWNER CLEAR			

pieces of printed matter are being used by the Glens Falls Company and its affiliates. Mr. Frair points out that there is hazard of considerable waste incident to forms becoming obsolete or even unnecessary. Hence a careful check is kept on forms and their usage, and requests for new forms that may originate with department heads or others are carefully screened to make sure that the forms suggested are practical and serve a useful function.

DISTRIBUTOR FOR PIONEER PAPER DRILLER

Appointment of the Addressograph-Multigraph Corporation as a distributor for the new Pioneer Model-C paper driller, is announced by the Pioneer-Toledo Corporation, makers of paper drillers, saws and routers for the duplicating and printing industries. Addressograph-Multigraph will handle the driller through its 75 branches in the United States and Canada.

Until recently these drillers were available only for 110 volt 60-cycle current, but equipment is now available for 25 cycle, 220 volt, or direct current. The pioneer is a production driller of standard size and capacity. Drills have a depth capacity of 1¾ inches, and are available in 14 sizes.

pu

he



• In these days of scrambling for available commodities to keep your business in profitable operation, proper purchasing records are vitally important. Kardex *visible* commodity purchase records give you all pertinent facts *immediately* — help you purchase wisely and economically.

Purchase routines are dramatically speeded up when you can make out orders right from the factual summaries in this one centralized record; for example, Kardex gives you, without digging through files:

Complete, detailed specification record of each item;

Up-to-date list of vendors;

Complete record of orders placed, showing quantity, discounts, shipping point and prices;

Noted information on fulfillment of shipping promises and condition of material received.

Copyright 1949 by Remington Rand Inc.

Exclusive Kardex signal control puts the spotlight on obsolete items, surplus available, contract items and items that can be advantageously purchased in combination with others.

Kardex Visible Commodity Purchase Records are centralized for speed, for economy, for accuracy: they help you get "on top" of the purchasing situation, and stay there!

Send today for <u>Purchasing Department Records</u>
and <u>Routines</u>—detailed presentation of modern, <u>simplified</u> visible and other purchasing record systems for all phases of commercial and industrial purchasing. Here are just a few of the important subjects covered in this exhaustive booklet:

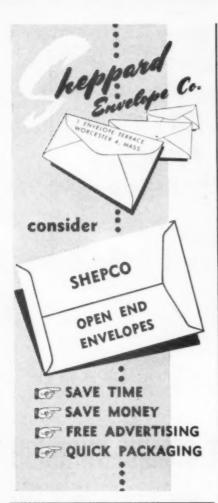
Index to Vendors • Venders Purchase Record • Contract Records • Make and Hold Records • Vendors Catalog File

Write Systems Division, 315 Fourth Avenue, New York 10, New York.



Remington Rand THE F

THE FIRST NAME IN BUSINESS SYSTEMS





Oxford FILING SUPPLY CO., INC.

Garden City, N. Y.

NEW LINE OF WATER COOLERS INCLUDES ONE WITH HEATING COILS FOR COLD LOCATIONS

New water cooler in the 1949 Oasis line of water coolers made by the Ebco Manufacturing Co., Columbus, Ohio, is the model OP-10WH, which in addition to water-cooled condensing unit has a system of heating coils which permits the cooler to operate efficiently in locations where the ambient temperature is below freezing. Specially engineered strip heaters prevent the water lines from freezing, and a thermostat automatically maintains drinking water temperature at more than 42 deg. It is recommended for installations in unheated buildings or outdoor locations where temperatures do not go below —7 deg.

Another new unit is the Model OP-10W, a heavy duty ten-gallon, bubbler type cooler. The condensing unit and other operating parts are in the lower half of the cabinet which is air-tight, thus protecting the mechanisms against corrosive fumes, lint or dust. This model was designed for service in steel mills, foundries, tobacco factories, cement plants, paper mills, textile mills, and other locations where a sturdy cooler is required.

There are 18 models of electric drinking water coolers in the 1949 line, all of which carry the Underwriters' seal of approval.

7 7 7. PERMANENT INK BLOTTER

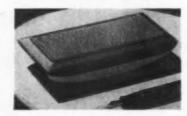


Illustration shows permanent ink blotter being marketed by the Blocaris Company, 755 Boylston St., Boston 16, Mass. The blotter, which is tradenamed Permablot, is made of an absorbent composition, chemically treated. The maker states that it will give blotting service for indefinite years. Absorption of ink is rapid and no pressure is needed. The frame is of light metal finished in pastel green hammertone.

UNDERWOOD ANNOUNCES AUTOMATIC JUSTIFYING TYPEWRITER

A new Underwood Automatic Justifying Typewriter has been announced by the manufacturer. Combining the features of their standard typewriter with the recently announced carbon paper and fabric ribbon attachment, this justifying typewriter incorporates an entirely new and exclusive built-in feature to provide an even right-hand margin on typewritten copy. The construction is such that it does not in any way interfere with the use of the machine for regular office typing.

The justifying is accomplished by Underwood's new variable pitch rack. The



IT'S SO EASY TO KEEP HANDY

Referring to the Conover-Mast Purchasing Directory is the easiest and quickest way for sources of equipment, products, and supplies used by industry. In building this directory specifically for purchasing, production, and engineering executives, all non-industrial listings and advertisements are rigidly excluded. That's why it's so complete and compact—yet so easy to handle.

Your Conover-Mast Pur-Chasing Directory saves time and trouble. The more you use it, the better you'll like it.



If your office does not have a copy of the CONOVER-MAST PURCHASING DIREC-TORY fill out and return the coupon below.

Conover-Mast PURCHASING

DIRECTORY

Formerly Plant Purchasing Directory.

Conover-Ma 737 N. Mich Chicago 11,		Directory
a copy of th	e Conover-Ma	Company receives st Purchasing Di- se it in our indus-
trial buying. obligation.	That, we unde	rstand, is our only
trial buying.	That, we unde	rstand, is our only
trial buying. obligation.	That, we unde	rstand, is our only
trial buying. obligation.	That, we unde	rstand, is our only

ends of this rack extend beyond the carriage on both the right and left sides of the machine. The right extension is for the purpose of turning the rack, and the left extension, inscribed with the numbers 1, 2, 3, 4, 5 and 6, is for the guidance of the operator. The rack may be turned easily to any one of these numbered positions, making it possible to expand a typewritten line one, two or three spaces, or contract the line one or two spaces.



The machine may also be used for regular office typing.

This machine was designed particularly for use in the preparation of bulletins, sales letters, portfolios, house magazines, office forms and similar original copy to be reproduced by any method of printing. The combination of features gives clear, uniform and pleasing typewritten impressions for master copies. It is available in a variety of type styles at all Underwood branch offices.

1 4 4

James H. Fraser has been appointed assistant to Vice President John C. Mc-Pherson, International Business Machines, Corp., New York, N. Y. A graduate of Stevens Institute of Technology, Mr. Fraser joined IBM in 1932, serving at Newark, Indianapolis and Cincinnati in various service and sales capacities, and just previous to his present appointment he was manager at Charleston, W. Va.

1 1 1 NEWLY DESIGNED TEL-O-AID



The accompanying illustration shows front and rear of newly designed Tel-O-Aid, developed by the Wagner-Metcalf Co., Glendale, Calif., which makes possible full free use of both hands while telephoning. It is an electronic device which enables one to talk over the 'phone while sitting at his desk, or from any part of his

(Please turn to page 236)

Prominent Users of Strathmore Letterhead Papers: No. 82 of a Series.



A new product developed for structural and decorative uses, Prest-Glass is light and flexible, yet, weight for weight, stronger than steel... doesn't shatter, can be nailed, cut with shears.

Does your letterhead do

full justice to your product?

Whatever your business...large or small, long established or new...it is important for your letterhead to express the quality and vitality of your firm. If your product is new, it is doubly important to make a good impression on your public from the start. Aware of this, like many other up-and-coming new firms, the Prest-Glass Corporation has chosen a Strathmore paper for its letterhead.

Does your own letterhead make the best possible impression? Does it immediately suggest quality, integrity, vitality? It may prove highly profitable to you to have your supplier submit new designs...on Strathmore's expressive letterhead papers.

Strathmore Letterhead Papers: Strathmore Parchment, Strathmore Script, Thistlemark Bond, Alexandra Brilliant, Bay Path Bond, Strathmore Bond, Strathmore Writing.

STRATHMORE MAKERS OF FINE PAPERS

Strathmore Paper Company, West Springfield, Massachusetts







(Continued from page 235)

office, without having to lift the receiver or hold it to his ear while talking or listening. The device is in no way mechanically connected to the telephone itself; installation consists merely of plugging it into an electrical outlet. If the telephone rings during a conference, it is not necessary to pick up the receiver, though everyone can listen-in or take part in the conversation. However, if so desired, the unit is readily converted into a private telephone for individual use only.

CHANGES ANNOUNCED BY APEX BUSINESS SYSTEMS

B. T. Abrams, sales manager of Apex Business Systems, New York, N. Y., recently announced the addition of the following new men to the organization: Bob Miller, Jr., former West Coast manager in charge of the Los Angeles branch, has been made general manager of the New York Office. Gerald A. Cavanaugh, previously connected with Uarco, Inc., and Boorum & Pease Co., has been named assistant sales manager under Mr. Abrams.

7 7 7 ROYAL APPOINTS J. L. WESLEY SAN ANTONIO DISTRICT MANAGER

Announcement is made by the Royal Typewriter Company of the promotion of J. L. Wesley, former manager at Chattanooga, to the position of district manager at San Antonio. He succeeds the



J. L. Wesley

late G. L. Davis. Mr. Wesley's headquarters are at 312 N. Presa Street. A former business college vice president, he joined Royal as a typewriter salesman at Jacksonville in 1944, and in the spring of 1947 was placed in charge of operations at the Chattanooga branch office.

GOLDEN ROYAL PORTABLE TYPEWRITER FINISHED IN 18-KT. GOLD

1 1 1

A special golden, gift-model portable typewriter, to be known as the Golden Royal, finished in 18-kt. gold, in airplane luggage-type case, is announced by the Royal Typewriter Co. The sides and all of the fittings are a brilliantly polished gold, and the top is black enamel. The

(Please turn to page 239)

The Key to Quality Reproduction...



INKED RIBBONS



CARBON RIBBONS



UNDERWOOD SUPPLIES

for Every Duplicating, Carbon & Ribbon Need



CARBON PAPER

CARBON ROLLS

TRANSVERSE CARBON



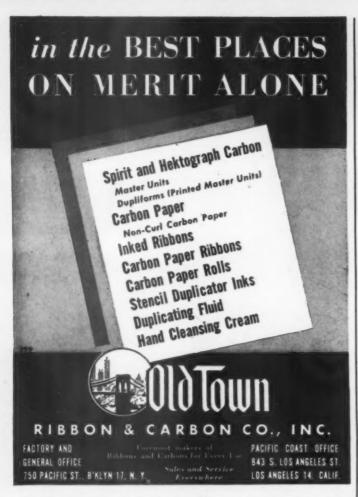


TAILORED **HECTO**

TRY THEM! COMPARE THEM! SEE THE DIFFERENCE! Samples and prices available at all branch offices or write direct to us.

CORPORATION UNDERWOOD

NEW JERSEY

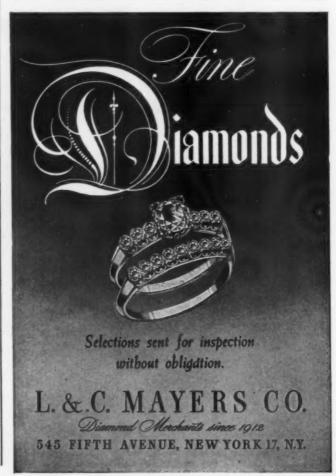




World's Largest Manufacturer of Pencil Sharpeners

aı





(Continued from page 236)

keys are enclosed by a thin strip of gold, and there is a gold name plate on which the owners' name or initials can be inscripted. The typewriter will be available with a personalized type face to be selected by the buyer.

1 1 1 FOR EASIER TYPING AND GREATER EFFICIENCY

One of the latest innovations by General Fireproofing Co., Youngstown, Ohio, makers of metal office furniture, developed to promote office typing efficiency and comfort is an adjustable typewriter platform which is now standard equipment on its fixed-bed desks. This platform is adjustable on 7/8" centers from to 3078" above the floor level.



The typewriter platform is adjustable to encourage finger movement rather than arm stroke, reducing energy consumed from pounds to ounces.

This development is said to make for faster typing, less fatigue and greater accuracy. It results in a finger movement rather than a full pounding arm stroke and reduces the energy consumed for each stroke 14 to 17 pounds to from 13 to 17 ounces-all through the factor of keeping the typewriter at proper height in conformance with operator's height and proportions.

COLOR MOTION PICTURE ON ELECTRIC TYPEWRITING

A 15-minute, full color, 16mm sound motion picture featuring the advantages of electric typewriting has been released by Remington Rand, Inc., 315 Fourth Avenue, New York, N. Y. It is entitled "The New Remington Electric Deluxe Typewriter." The film stresses the allpurpose utility, the operating conveniences and fine work done with this new addition to the Remington typewriter line. Prints together with projection equipment and an experienced operator are available for free showing or booking through any of the Remington Rand branch offices, or through the company's home office.

> CLASSSIFIED SECTION SEE PAGE 334





CALLING CARD FINDER for OFFICE or HOME



SAVES YOUR TIME!

- One Hand Control
- A-Z Alphabet
- a 100 Blook Cords
- Groups Cards by Subject
- Off-and-Under Lid
- Nothing to break

Beautiful Plastic Case, Your Choice of: Ivory & Maroon Walnut

Ebony Black Green Ivory Chinese Red Navy Gray

Cures "Desk Drawer Clutter". Keeps cards handy when needed. Fits in desk, Brief Case or Glove Compartment. Separator Size: 3¾ x 2 with large ¾" tab. Holds 400 cards. Avail-able for imprinting as Advertising Premiums or Company gifts.

Buy from Manufacturer, Complete

— Prepaid

Science Craft

1851 No. Normandie

Hollywood 27, Calif.

Among the ASSOCIATIONS

Alabama Association's Second Annual Buyer-Seller Dinner Draws Large Crowd

The Second Annual Seller-Buyer Get Together of the Purchasing Agents Association of Alabama drew more than four hundred salesmen and buyers to

B. C. Colcord, President, Woodward Iron Co., Speaks on "Buyer-Seller Relationship"

the Thomas Jefferson Hotel in Birmingham, on February 17. The affair was a highly successful one that further cemented the close association and mutual understanding of the two groups in the area. The party celebrated the twenty-first anniversary of the Alabama association.

A pre-dinner fellowship hour in the

lounge and Jefferson Room of the hotel attracted a large crowd and prepared the way for the balance of the program, which was held in the Terrace dining room, beginning with a steak dinner.

Following dinner, First Vice President Newman Yeilding, presiding in place of President Herschel Wilson, introduced the representatives of sales and business organizations of the state, and several purchasing agent guests. Mr. Herschel, who was present, had asked Mr. Yeilding to preside in his place because of a recent illness.

General Chairman George Wilson introduced the members of the committee who handled the arrangements for the meeting.

George Cole, Purchasing Agent of Alabama Power Company, gave a short talk on "Selling and Buying". He compared the origins and backgrounds of the two functions and their inter-relationship. Mr. Cole described the great advances made in the industrial growth of the Southeast in the past few years. "The thinking and the actions of the sellers and buyers of the new industrial Southeast" he said, "will play important parts in our future progress."

B. C. Colcord, President, Woodward Iron Company, spoke on "The Purchasing Function and Buyer-Seller Relationship". Reviewing the relationship, he said:

"It is indeed a monument to all of

you that our economic structure did not collapse under the impact of selfish interest and greed. It is my sincere hope that the high integrity displayed by both buyer and seller will continue throughout our nation—it is a good omen for the future of our industry, as well as our democracy."

Stressing the mutual responsibilities of the two groups, Mr. Colcord said, "the Purchasing Department must have more than a superficial knowledge of what the Operating Department is making, and how they do it. It is essential that Purchasing, through contact with Engineering and Operating, know for what purpose the material and equipment will be used.

"The capable purchaser should thoroughly understand inventory control and the reasons therefor.

(Continued on page 242)



Newman Yeilding, Birmingham-Southern College, fills in for Herschel Wilson



View of the speakers' table at the Second Annual Seller-Buyer Dinner of the Purchasing Agents Association of Alabama, held in the ballroom of the Thomas Jefferson Hotel, Birmingham, on February 17. The affair drew over four hundred buyers and salesmen.

Only GOULD

A modern research
laboratory with
pilot manufacturing plant
where advance-design batteries
are constantly created
and proved before production.

Gold's Pilot Plant is a complete experimental scale manufacturing plant in which advance-design but locks are are-fested and proved bears commercial release.

The Pilot Plant is where all Gould developments prove their commercial worth. Each advance of research must prove itself . . . must prove to be practical. Here, Gould has already made advances in methods of die-casting and in the use of powdered metals, and has done revolutionary work in the improvement of gravity casting. Here, present batteries are being perfected and tomorrow's advance-designs are being created. Another reason why the better batteries come from GOULD—FOR FIFTY YEARS THE CHOICE OF ENGINEERS.



The Gould "Thirty"—America's Finest Industrial Truck Battery!

GOULD

STORAGE BATTERY CORPORATION

Including the Storage Battery Division of Philos Corporation

TRENTON 7, NEW JERSEY

Always Use Gould Automobile and Truck, Batteries

Rochester Technical Course For Purchasing Agents Acclaimed

Wide interest is being shown in the course on "Technical Problems in Purchasing" sponsored by the Purchasing Agents Association of Rochester, N. Y., at the Rochester Institute of Technology. As stated in the February issue of Purchasing Magazine, this year's course is scheduled for the period April 25 to 30, inclusive.

It is a repetition of the course given last October which attracted purchasing personnel to its sessions from as far away as Maine, North Carolina, and the State of Washington. Students participating in that course have expressed their enthusiasm and pleasure in the way the program was handled, and the benefits that they derived therefrom.

Covers Technical Aspects

The course is quite different from the general run of programs given by various colleges and high schools throughout the country on procurement and supply, in that it deals more particularly with the technical and mechanical aspects of procurement.

Members of the class will be kept busy on an eight-hour schedule per day with one evening plant visitation, two evening lectures, and the attendance another evening at the monthly meeting of the Rochester Association.

The program in comparison to the course given in October is amplified and considerably expanded. The subjects for study and discussion cover the following: Blueprint reading; Industrial Lubricants; Capital Equipment; Molding, casting, and extrusion of metals and plastics; textiles; Containers; Distribution problems and price practices; materials handling; stores control; and raw Commodities Economics.

Expert Instructors

As will be noted from the following, the lecturers and instructors are of top rank and many are nationally recognized leaders in their particular fields:

Col. George S. Brady, director, Industrial Materials Service, Washington, D. C.

Dr. Martin A. Brumbaugh, director of statistics, Bristol Laboratories, Inc., Syracuse, N. Y.

Lee R. Forker, general purchasing agent, Quaker State Oil Refining Corp., Oil City, Pa.

George E. Hagemann, engineering editor, The Ronald Press, New York, N. Y.

F. E. Headen, assistant manager of sales, Lubricants Department, Shell Oil Co., New York, N. Y.

H. M. Patterson, engineering manager, Plastics Division, General Electric Co., Pittsfield, Mass.

Wilson B. Wight, chairman, "How to Buy" Committee, N. A. P. A.

Also, the instructors of engineering drawing, architectural drawing, quality control, screw machines, and machine shop practice of the Rochester Institute of Technology.

The fee for the course is set at \$75., and registration is being taken by Alfred L. Davis, associate director, Evening and Extension Division, Rochester Institute of Technology, Rochester 8, N. Y.

HAMILTON DISTRICT ASSN.

The annual Salesmen's Night meeting of the Purchasing Agents Association of Hamilton District was held on Wednesday, March 16.

The guest speaker was Hon. Orlo M. Brees, member of the New York State Legislature. His subject was "The Secret of Happiness".

LARGE CROWDS ATTEND INDIANAPOLIS SHOW

The annual Indiana Industrial Show, sponsored by the Purchasing Agents Association of Indianapolis, was held in the State Fair Grounds for four days beginning February 9, and drew an estimated 50,000 visitors. Theme of the show was "how to make it cheaper and better."

Dan Young was general chairman, and E. F. Andrews was show chairman, assisted by V. L. Boyer, D. M. Johnson, W. H. Bultman, Jr., and H. F. Holtman.

J. H. Reese, technical advisor for Revere Copper & Brass, Inc., was the principal speaker at the regular meeting of the association held on February 17 at Larue's restaurant.

Over 400 At Alabama Assn. Buyer-Seller Night

(Continued from page 240)

"He should sense the time to increase or decrease inventories and do something about it if he has the authority, other-



George H. Cole, Alabama Power Co., Speaks for the Purchasing Agents, on "Selling and Buying"

wise make recommendations. He should have a thorough knowledge of the markets in which he is involved, who produces the material, where and for how much delivered, always keeping in mind that the price paid is only part of the answer, the ultimate cost in the operation being the criterion of sound purchasing."

Ladies Greet Guests

An informal highlight of the affair was the atmosphere prevailing at the predinner fellowship hour, when discussion of business was "strictly taboo". Lady members of the association were in attendance at the entrance to welcome the guests, and to give them a "souvenir" package that produced an electrical shock when opened.

Several other lady members concerned with buying and selling for industry and institutions in Alabama, also attended the banquet.

The entertainment program that occupied the rest of the evening featured an excellent floor show with Morris Nelson as master of ceremonies.



The Committee in charge of arrangements: (left to right) Newman M. Yeilding, program;
Carl Thomas, reception; George L. Wilson, general chairman; Roy B. Evans, entertainment;
D. C. Clark, stage; C. T. Moates, hotel; Quin Cather, decorations.

Precision Produced

...from Globe Seamless Steel Tubes to Globe Welding Fittings

Your preference for Globe Welding Fittings is supported by a source of supply with exceptional qualifications. Specialized metallurgical experience and facilities gained in years of steel tubing manufacture enable Globe to produce welding fittings by a precision process that yields a superior product.

Send for the Globe Welding Fittings Catalog.

GLOBE STEEL TUBES Co. Milwaukee 4, Wisconsin

Producers of Globe seamless stainless steel tubes — Gloweld welded stainless steel tubes — carbon — alloy — seamless steel tubes — Globeiron seamless high purity ingot iron tubes — Globe welding fittings.

GLOBE

PRECISION PROCESS
WELDING FITTINGS



HAROLD MACINTOSH SPEAKER AT M.P.A.C. MEETING

Harold W. Macintosh, Director of Purchasing and recently elected treasurer of L. O. Koven & Bro., Jersey City, N. J., was the principal speaker at the March 8 meeting of the Metropolitan Purchasers' Assistants' Club, held at the Midston House, New York, N. Y. His subject was "What the Salesman Expects of the Purchasing Agent.

Prior to Mr. Macintosh's talk, a film entitled "Unfinished Rainbows" was presented through the courtesy of the Aluminum Company of America.

In the course of his talk Mr. Macintosh stressed that it is a responsibility of purchasing agents to take the initiati e in introducing new products and new equipment that they feel will be of benefit to their companies. In other words, in addition to being good purchasing agents, they must also be good salesmen in order that they may "sell" these new developments to their managements and to the men in their plants. Mr. Macintosh told how he tried for a long while to get his management to install a certain type of machine, finally "selling the boss" on the idea that it would make for definite production economies and save money. After the machine had been in service for some time and demonstrated that it was a money-saver, he was complimented for "doing a good job". The point he established was that even though suggestions and ideas may not be at first accepted, the purchasing agent, being sure of his ground, should not quit his efforts to have his ideas put into effect. "Stick to a good idea, if you have one", he said.

Mr. Macintosh pointed out that it is highly important that the purchasing agent continue his "school work" all through his business career if he is going to make a success of his job. It is the purchasing agent's duty and responsibility to keep abreast of the new developments in materials, equipment and processes, not only from the standpoint of his own company's operations, but also from the standpoint of his suppliers.

Furthermore, he must know the production and facilities of his own plant intimately in order that he may intelligently deal with salesmen and sales engineers who call on him. Not only must purchasing agents be receptive to new ideas, but they should be friendly and courteous; they must be fair, honest, exercise good judgment, and be firm. He said that salesmen should not be kept waiting too long. If a purchasing agent or buyer is tied up, and will not be available for some time, salesmen should be told about it and given the option of either waiting or calling again. If the buyer cannot handle a subject presented to him by a salesman, he should call in someone from the plant who is able to discuss it.

"However, by showing that you have a complete knowledge of your company's business and its requirements, you not only gain the confidence of salesmen but of your own department heads and of-

(Please turn to page 246)



Our NEW

Reader Service will save you a lot of letter writing!

You of course want many of the latest catalogs and bulletins mentioned in the:

Advertisements,
"Ask Purch" Pages,
New Products Section.

Simply list your wants on the Postage-Paid Reader Service post cards on pages 19 and 20.

Try it this month. Use the service every month. No charge. It's an easy way to keep your catalog and information files

UP-TO-DATE

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You need not experience costly delays in securing thin wall bearings and bushings. Here at Johnson Bronze, we are equipped to furnish promptly your requirements, made to your specifications . . . and within a period of days, not weeks. Johnson Bronze bearings assure you of top quality in materials and workmanship. We produce them in rolled sheet bronze . . . bronze on steel . . . babbitt on steel. Our facilities for manufacturing thin wall bearings are complete . . . our help is skilled . . . and our experience dates back forty years.

If we can assist you in better delivery or improved quality . . . write, wire or call today.

JOHNSON BRONZE COMPANY
450 S. Mill St. New Castle, Pa.



(Continued from page 244)

ficials. I always try to keep department heads informed of the new developments that come to my attention, calling them in on interviews that I feel would be of interest to them. Purchasing is like the hub of a wheel, and the purchasing department is radiating out to all the other branches of the company. That's why purchasing agents must take particular pains to be entirely familiar with every phase of their company's operations, its equipment and products; thus equipped they are best able to gain the confidence of the other department heads. You must show the other fellow that you are trying to help him, and so doing you will find that he will come to you for help and advice.

"We can learn much from salesmen who really know their own company's products. I consider that the salesman has a message for me, that he is in position to teach me something, and I treat all salesmen accordingly. We must not overlook that we should know our jobs, as we expect the salesmen who call on us to know their jobs. Our buyers are instructed to learn as much as they can about new products and equipment that may be of interest to our company."

"We must bear in mind, as purchasing agents, that our companies have men on the road," said Mr. Macintosh, "and I think it is a good rule to treat the salesmen who call on us, just as we should like to have our men treated by other purchasing agents."

EASTERN NEW YORK ASSN. ANNUAL EXECUTIVE NIGHT

The fifteenth annual Executive Night meeting of the Purchasing Agents Association of Eastern New York was held in the DeWitt Clinton Hotel, Albany, N. Y., on Thursday, March 24. Principal speaker at the meeting was Harold Boeschenstein, president of Owens-Corning Fiberglas Corporation, Toledo, O. A detailed report on the meeting will appear in the next issue of Purchasing.

WIGHT TALKS TO ELMIRA ASSN. ON N.A.P.A. EDUCATION

The regular meeting of the Elmira Association of Purchasing Agents was held at the Mark Twain Hotel on Thursday evening, February 24.

A film entitled "Greater Vision Through Optical Science" was presented by the Bausch & Lomb Optical Co. of Rochester, N. Y.

Following the showing of the film, W. B. Wight, Assistant Purchasing Agent of Bausch & Lomb, gave an address on the activities of the Educational Committee of the National Association of Purchasing Agents. In his talk, Mr. Wight disclosed the prodigious amount of work being done by the committee and paid tribute to George Aljian, chairman, for the great work that is being accomplished along educational lines for purchasing agents.

(Please turn to page 248)

the horsesense way to use horsepower

There is one best way to secure the slower speeds you need for most of your motor driven machinery . . . use Master Gearmotors . . . the horsesense way to apply horsepower.

Follow the example of the designer of this materials testing machine. See how he has used this Master Gearmotor to secure power right where he needs it . . . and at exactly the right speed. How else could he have achieved such a compact, clean-cut, economical design.

And nowhere, but in the Master line of Gearmotors, could he have found power units that are so flexible, so easily adaptable and in such a wide range of sizes and types. They are available in any size, 125 HP and smaller . . . for all cycles, phases and frequencies . . . in open, splash proof, totally enclosed, fan cooled and explosion Proof types . . . with Speedrangers (mechanical variable speed) and Unibrakes . . . for every type mounting.

Increase the salability of your motor driven products
... improve the economy, safety and productivity of
your plant equipment, with Master Gearmotors ... the
horsesense way to use horsepower.

THE MASTER ELECTRIC COMPANY
DAYTON 1, OHIO

OUT OF 1001 TEST TUBES

The Chicago Mounted Wheels you use today look simple enough — abrasive wheels mounted on steel shanks, but—

Those little wheels are the result of more than 50 years of know-how and more than 1001 tests to determine the most exactly perfect combination of grain, grade, bond, shape, shank length and steel analysis to do each job.

FORWARD-Looking is the Word

Use Chicago Mounted Wheels
— the first wheels
ever to be mounted
on their own steel
shanks — today's
finest.





AND, the same expert craftsmanship that has made Chicago Mounted Wheels the most widely used in industry today accounts for the outstanding results you get with Chicago Grinding Wheels and Cut-off Wheels.

FREE ENGINEERING SERVICE

Let us help you with your grinding problems. Send for our Engineering Data Sheet making it easy for you to submit information from which we can recommend the abrasives that will do your jobs best.

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MARKETING PROFESSOR GUEST AT ST. LOUIS ASSN. MEETING

The regular monthly meeting of the Purchasing Agents Association of St. Louis was held on Tuesday, February 15, at the Sheraton Hotel.

Chief speaker was Joseph M. Klamon, Associate Professor of Marketing at Washington University, on the subject "Federal Legislation Affecting Business". Mr. Klamon is a former member of the faculty at the Harvard Graduate School of Business Administration, and held teaching assignments at several other universities.



J. M. Klamon

Charles D. Hoffman, member of the executive committee of the local association, and Purchasing Agent of A. Leschen and Sons Rope Co., gave a talk on "Wire Rope".

Mr. Klamon highlighted the outlook for business men in regard to federal legislation as follows:

"Taxes—International needs . . . as well as the necessity of servicing the internal national debt mean that taxes will probably be increased.

"Labor—Senators Morse and Ives will very likely introduce a compromise bill which will salvage what is good in the Taft-Hartley Act and also embody a great deal of the Wagner Act.



C. D. Hoffman

"Price Controls—In view of the recent behavior of commodity and other markets, it is unlikely that even standby price controls will be enacted, although, of course, rent controls will be continued for some time.

"World Trade—It is quite likely that Congress probably will move further in the direction of multi-lateral pacts in world trade rather than reciprocal trade agreements alone. One sure way to deepen any coming recession will be to restrict the free flow of commerce between nations."

(Please turn to page 250)



NOW ... there's a big change in this picture

And you see it in quicker P-K Self-tapping Screw deliveries

REMEMBER THIS PICTURE? We used it in an August, 1946 advertisement to illustrate the serious shortage of raw materials, a main reason why deliveries of P-K Self-tapping Screws were so slow.

Now, there's a big change. Supplies of steel wire are almost normal. Backlogs have been worked down. Stocks have been built up. As a result, on most sizes of screws, in all types, prompt deliveries are again being made.

Today, there is no longer any reason why any manufacturer need accept a substitute when he wants P-K Self-tapping Screws. Parker-Kalon Corporation, 200 Varick Street, New York 14, N. Y.

YOU'RE O.K WITH P-K ... THESE EXTRAS PAY

- ORIGINATORS OF SELF-TAPPING SCREWS
- ONLY COMPLETE LINE
- . 35 YEARS' APPLICATION EXPERIENCE
- A FYPERT ASSEMBLY ENGINEERING
- UNSURPASSED QUALITY CONTROL LABORATORY
- . LARGEST PRODUCTION FACILITIES
- TOP-RATED DISTRIBUTORS EVERYWHERE

AVAILABLE THROUGH

ACCREDITED DISTRIBUTORS

PARKER-KALON SELF-TAPPING SCREWS

FOR EVERY METAL AND PLASTIC ASSEMBLY

OTHER PARKER-KALON PRODUCTS: Cold-Forged Socket Screws, Wing Nuts, Thumb Screws Hardened Screwnaits and Masseary Naits - Shur-Grip File and Solder Iron Handles Motal Punches - Damper Regulators and Accessaries

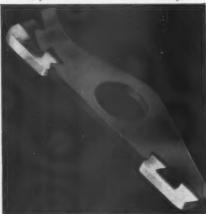
LAMINUM* SHIMS GIVE THE FULL SAVINGS OF SHIM DESIGN!



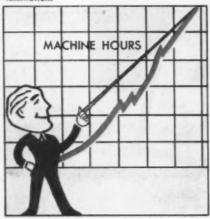
PRECISION ADJUSTMENTS by simply peeling laminations. No grinding, miking, filing. Machining tolerances are greatly increased because the shim provides for exact fit and takeup.



AT-THE-JOB ADJUSTMENTS. No need for standby lathe or operator. The only tool required is a jackknife to peel off a .002" or .003" lamination.



PREVENTION OF OIL AND PRESSURE LOSS.
Fitted with babbitted lugs, LAMINUM shims will
also seal oil in the bearings of high speed
pressure-lubricated equipment.



LESS "DOWN TIME" FOR THE USER. The use of LAMINUM provides a permanent adjustment feature to allow for wear and preserve critical accuracy.

Send today for chart illustrating 46 money-saving, time-saving applications, detailed specifications, sample of LAMINUM.

PRECISION STAMPINGS in any quantity

Let us quote on your difficult stamping jobs. Our experience, tools and presses are geared for close tolerance production. AMINUM (Reg. U. S. Pat. Off.) shims are solidly bonded laminations of .002 or .003 inch precision gauge brass or steel with a microscopic layer of metallic binder. Cut to your exact specifications.



LAMINATED SHIM COMPANY, Inc. 2404 Union Street Glenbrook, Conn.



SHIMS

SHIM STOCK





STAMPINGS

AN-COR-LOX NUTS

PURCHASING-SALES "DEBATE" MARKS YOUNGSTOWN MEETING

A friendly "debate" over the relative merits of salesmen and purchasing agents featured the March 15 meeting of the Purchasing Agents Association of the Youngstown District, held at the Youngstown Club.

Rider Neff, Sales Vice President of Cleveland Cap Screw Co., presented the salesman's point of view on purchasing agents, and Arthur G. Hopcraft, Purchasing Agent for Cleveland Worm and Gear Co., was the representative of the "defense".

7 7 7 C. S. FRINK ELECTED HEAD OF HOUSTON ASSOCIATION

C. S. Frink, Purchasing Agent of the Texas Division, The Dow Chemical Company and Ethyl-Dow Chemical Company, Freeport, Texas, was elected president of the Purchasing Agents Association of Houston, at an election meeting on February 8.

Mr. Frink succeeds J. B. Thompson, Purchasing Agent of Shell Pipe Line Corporation.



C. S. Frink

Elected with Mr. Frink were R. J. Gallagher, Metal Goods Corporation, first vice-president; M. W. Peters, Humble Oil & Refining Company, second vice-president; and J. F. Florian, Gulf Brewing Company, treasurer. Mr. Thompson was named national director, with Sam H. Harper, The Pure Oil Company as alternate national director.

Three local directors elected were M. S. Biggs, Stanolind Oil & Gas Company; J. F. Estill, Jr., Houston Lighting & Power Company; and E. F. Foster, Wyatt Metal & Boiler Works.

1 1 1 QUALITY MANAGER SPEAKER AT SYRACUSE & CENTRAL N.Y. ASSN.

The fifth in a series of Educational Program Meetings was held at the Onon-daga Hotel, Syracuse, N. Y., by the Purchasing Agents Association of Syracuse and Central New York on February 23.

Guest speaker was K. E. Davenport, Quality Manager, Auto-Lite Battery Corporation, Owen-Dyneto Division, Syracuse, whose subject was "Quality Control". A panel of experts from member companies added their comments after the main talk.

(Please turn to page 252)

COPPER ALLOY BULLETIN

PRODUCT IMPROVEMENT EDITION

REPORTING NEWS AND TECHNICAL DEVELOPMENTS OF COPPER AND COPPER BASE ALLOYS



Prepared Each Month by Bridgeport Brass Co. "Bridgeport" Headquarters for BRASS, BRONZE and COPPER

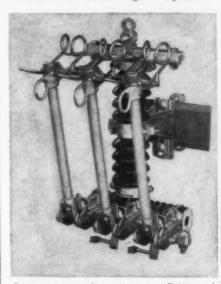
High Conductivity and Reliability Essential in Alloys for Power Transmission Equipment

Power distribution equipment made by Railway and Industrial Engineering Co., Greensburg, Pa., is designed for ruggedness and dependability. For this reason, materials are selected for high conductivity, excellent mechanical properties and resistance to corrosion.

All current-carrying parts are of copper and its alloys. Switch blades on the Type TTR are made from Bridgeport's high conductivity copper pipe, which has a conductivity better than 100% IACS at 68 deg. F soft.

In the type R3T horn gap switch, good spring properties and good conductivity are required. Bridgeport's Phono-Electric 840 was chosen to assure dependable highpressure contact at all times. Phono 840 resists wear, corrosion and arcing, and is much stronger than copper, with 40% of copper's conductivity.

Phono-Electric 840 is also used in the Type TTL group-operated horn gap switch and the open type repeating cutouts, for dependable, high-pressure, good conductivity contacts. These applications are typical of the uses of Phono-Electric 840 Bronze in pole line and power transmission hardware, U-bolts, wire connectors, etc., where strength, toughness, good electrical conductivity and resistance to corrosion from weathering are required.



Open type repeating cutouts use Bridgeport's Phono-Electric No. 840. Courtesy Railway and Industrial Engineering Company.

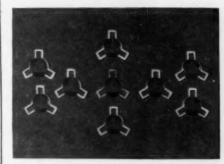
Its unusual malleability, even in the hard drawn condition, permits cold upsetting and roll threading operations for making cap and machine screws, nuts, bolts and similar screw products, with a great saving in the number of operations as well as reduction of scrap. When cold upset from hard drawn wire, screws can easily attain tensile strengths of about 100,000 lbs. per square inch. When properly made, they do not require heat treatment after upsetting.

No. 609 and other engineering alloys are described in Bridgeport's 128-page Technical Handbook, which also contains valuable information about other copperbase alloys, suggested applications, specifications and other data. A copy will be sent upon request.

632 Silicon Bronze Makes Dependable **Spring-Type Bearing Retainer**

One of the engineering features that contributes to longer life of Signal Universal Heater Motors made by Signal Manufacturing Co., Inc., Lynn, Massachusetts, is the accurate alignment of the sealed-forlife bearings. Proper line-up during assembly and under any deflections during operation is secured by seating the bearing in the spherical pocket of the motor case, where it is retained by a strong spring made of Bridgeport's Silicon Bronze 632.

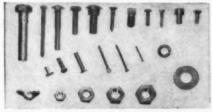
This stiff spring provides the uniform pressure necessary for a tight, firm fit against the case pocket, and yet is resilient enough to allow for some motion during line-up. However, it must be strong enough to prevent any turning of the bearing, even at shaft speeds up to 10,000 rpm.



Bearing Retainers made from 632 Silicon Bronze used in fractional horsepower motors for automo-tive and marine heaters, defrosters, windshield wipers, etc. Courtesy Signal Manufacturing Co., Inc., Lynn, Mass.

Bridgeport's No. 609 Silicon Bronze for Dependable, High Strength Fasteners

The increasing demand for high strength, rust-free fasteners able to stand up over long periods of time without attention is being met by Bridgeport's No. 609 Silicon Bronze, developed about fifteen years ago by Bridgeport Brass Company. This alloy



High strength, corrosion-resisting Silicon Bronze products. Courtesy H. M. Harper Company. is used successfully for bolts, nuts, U-bolts, wire and cable connectors, nails, cotter pins, etc., for hardware on power transmission lines which are exposed to the elements and subjected to vibration in high winds or to heavy ice loads. Other uses are for electrified transportation systems and for the manufacture of building and marine hardware, etc.

Bridgeport's No. 609 Silicon Bronze (approx. 98% copper, 2% silicon), because of its fine corrosion resistance, high strength and other engineering properties, is finding increasing use where reliability is required and under conditions too severe for ordinary materials.

From a manufacturing standpoint, Bridgeport's No. 609 has fine workability.

BRASS · BRONZE · COPPER · DURONZE — STRIP ROD · WIRE · TUBING

MILLS IN BRIDGEPORT, CONNECTICUT INDIANAPOLIS, INDIANA

In Canada: Noranda Copper and Brass Limited, Montreal



BRIDGEPORT BRASS COMPANY BRIDGEPORT 2, CONNECTICUT

Established 1865



rt District Offices and Warehouses in Principal Cities

THREADED FASTENERS...

They're Stronger
They're Tougher
They're TRIPLEX



• TRIPLEX Cap Screws, Set Screws, Nuts and Bolts are made for just one purpose. That is to hold tighter, longer. Of course, they are also noted for speedy application because of their free-running threads that save time.

Turn to TRIPLEX if you want a turn for the better. Write for free wall chart. It makes ordering easier.

THE TRIPLEX SCREW COMPANY
5331 Grant Avenue Cleveland 5, Ohio

TREPLE TOUGHNESS

DALLAS ASSOCIATION SEES FILM ON MINING OPERATIONS

Feature of the February 10 meeting of the Purchasing Agents Association of Dallas, held at the Melrose Hotel, was a color movie entitled "Underground", depicting mining operations in Oklahoma and Kansas. Bentley Murphy and Wade Martin of the Eagle-Picher Company presented the film.

A second movie, "Must It Rust?" was shown through the courtesy of the Hot Dip Galvanizing Association.

Guest speaker at the February 24 meeting, held in the Melrose Hotel, was Jim Floyd, advertising director of the Lone Star Gas System. Mr. Floyd's subject was "Some Phases of American Communism".

A regular meeting of the association was held at the Melrose Hotel on Thursday, March 10. Principal speaker was R. L. Thornton, chairman of the board of the Mercantile National Bank of Dallas, whose subject was "Business Today and Tomorrow". Executives of the companies represented by members were invited to the meeting.

PURCHASING MANUAL SUBJECT AT NEW YORK ASSN. FORUM

1 1 1

The afternoon forum preceding the March 15 meeting of the Purchasing Agents Association of New York, at the Builders' Exchange Club, featured the topic "The Purchasing Manual; Its Preparation and Use".

Some of the points dealt with in the discussion were: who needs a purchasing manual; source of material for preparing it; what information the manual should contain; its use; and the experience of those using the manual. Edward M. Krech presided at the forum.

Principal speaker at the dinner meeting was Dr. Michael M. Dorizas, professor of geography, Wharton School of Finance & Commerce, University of Pennsylvania. Dr. Dorizas' subject was "Highlights of the Present World Scene."

PANHANDLE ASSOCIATION ELECTS NEW OFFICERS

1 1 1

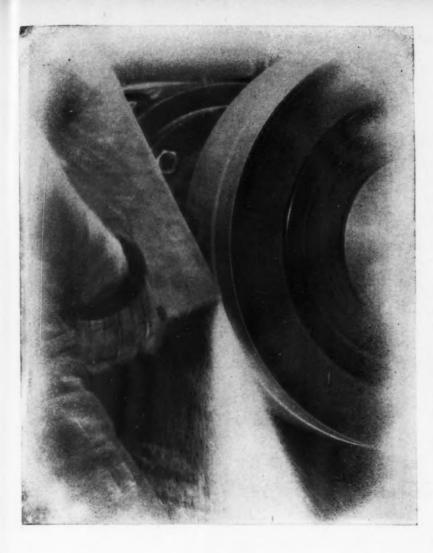
John A. Price, Purchasing Agent for Clowe and Cowan, Amarillo, Texas, was elected president of the Purchasing Agents Association of the Texas Panhandle at a meeting held on February 9.

Other officers chosen are: C. G. Blair,
J. M. Huber Corp., Borger, vice-president; W. B. Chapman, Southwestern
Public Service, Amarillo, secretary; G.
F. Branson, Cabot Carbon Co., Pampa,
treasurer; Jess Pate, purchasing agent
for the City of Amarillo, national director; J. C. Stockston, Amarillo Gas Company, alternate national director.

New directors are: W. F. Walsh;

New directors are: W. F. Walsh; A.R.A. Swenson; D. E. Dudrow; and W. G. Hollifield.

(Please turn to page 256)



THIS NEW CUTTING TOOL is slashing time and costs on heavy-duty stock removal

RESINALL METALITE® BELTS

The reports are rolling in - "Two to four times more production with the new RESIN-ALL METALITE Backstand Belt." "RESINALL METALITE Cloth Belts produced 113 pieces as against only 37 by our former belt." "Our regular belts last one day - the new RESINALL METALITE Belts lasted four days."

In heavy-duty grinding or finishing, RESINALL METALITE Belts cut faster — cooler — longer. The reason is simple. A heat-proof, thermosetting resin bond locks the abrasive grains in place for "keeps" and won't soften and load up when the sparks fly under fast, continuous heavy-duty grinding. RESINALL MET-ALITE beats the heat.

SEE IT IN ACTION

Watch the new RESINALL METALITE Belt in your own shop on your own work. Our Field Engineers will be glad to make this demonstration without any obligation. Write us about it today.



BEHR-MANNING · TROY. N.Y.

NORTON abrasives

ALSO QUALITY OILSTONES FOR INDUSTRIAL NEEDS





MORSE ROLLER CHAIN D

 $M_{
m sizes}^{
m orse}$ roller chain, made in American manufacturers' standard discussions as approved by the A.S.M.E and A.G.M.A., is more than standard in performance.

Its extra ruggedness, high efficiency, and dependable service have stamped it in the minds of designers and engineers as extra special for better mechanical power transmission.

Available in single and multiple widths, with pitches from 3/8" to 21/2", Morse Roller Chain represents the result of engineering skill applied to a practical knowledge of chain design.

You get low-cost, positive, efficient, flexible chain drives for your mechanical power transmission with Morse Roller Chain. For complete information, write Dept. 335, Morse Chain Company, Detroit 8, Mich.

> Morse Cut Tooth Sprockets, accurately machined for top performance, are recommended for use with Morse Roller Chain. There's no divided responsibility for chain drive performance when you get both chain and sprockets from Morse.



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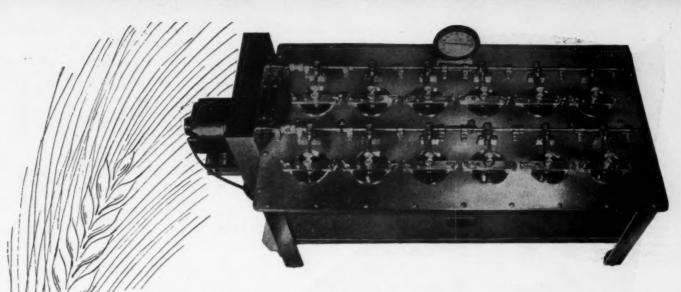






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MASON TALKS ON BASING POINT BAN BEFORE TULSA ASSN.

Lowell B. Mason, acting chairman of the Federal Trade Commission, was the principal speaker at the Executive Night meeting of the Purchasing Agents Association of Tulsea, held in the Tulsa Club on February 8. Topic of Judge Mason's talk was "Let's Give Business the Job, Not the Works".

Judge Mason discussed the various ramifications of the FTC campaign against basing point pricing and current proposals for legislation on the subject now basing discussed in Congress.

"Pretty soon", he said, "we're not going to have the buyers market that has kept you purchasing agents sweating blood." "Under the present Federal Trade Commission decisions", he added, "you will take from your closest producer and like it. As for your bosses, the executives who have to sell products so as to pay for the stuff you buy, maybe they would like to sell their wares in other localities to meet the payrolls. Who will pay the freight? Certainly not the buyer if he can buy from a local producer. And under the present FTC decisions, we won't let you pay it."

Arthur G. Pearson, Director of Procurement, American Meat Institute, Chicago, Ille, was the guest speaker at the March 9 meeting of the association, which was held in the Chamber of Commerce dining room of the Tulsa Building. Mr. Pearson is General Chairman for the 1949 convention of the National Association of Purchasing Agents.

RECENT ACTIVITIES OF UTAH ASSOCIATION

Recent activities of the Purchasing Agents Association of Utah include a trip to the Associated Grocers where one of the most modern inventory control systems in the West was demonstrated. The visit was arranged by Gordon Affleck and Joe Westra and the educational committee.

A large group of members recently visited the newly-constructed plant of Bennett's, one of the oldest and well-established paint and glass manufacturing companies of Salt Lake City. After dinner in the company lunch room, talks were given on color harmony by members of the interior decorating department, followed by an excursion through the factory. The building occupies over 65,000 square feet of space all on one floor. Richard Bennett, manager, and his associates were hosts. The arrangements for the visit were made by Siebert W. Mote and the plant visit committee.

On Monday evening, February 14, the association's Valentine Frolic was enjoyed by members and wives and friends from the various sales organizations. The party was held at El Gaucho Inn, and featured dinner, followed by an entertaining floor show and social dancing. Approximately 250 couples attended. Bill Allen and the entertainment committee handled the affair.

ndled the affair.
(Please turn to page 258)

NEW C-D Silicone Dilecto

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VARIED OUTLOOK FOR BUSINESS SEEN AT LOUISVILLE MEETING

Differing opinions on the outlook for business were expressed at the February 15 meeting of the Purchasing Agents Association of Louisville, featuring talks by leaders in business, labor, and teaching.

Edward H. Weyler, secretary-treasurer of the Kentucky Federation of Labor, viewed the situation as "foggy", and declared "we need a more equitable distribution of wealth if we are to consume what we produce". Arthur Sturgeon, vice-president of the Citizens-Fidelity Bank & Trust Co., warned that good, seasoned management was needed to face the major problems ahead for business, but said the outlook for 1949 contained no major or minor recession.

W. G. Whistett, assistant to the vicepresident of the L. & N. Railroad, said that railroads were "going forward, but with caution." Paul W. Johnson, manager of International Harvester's plant, described the production situation there, and said that 6,000 workers will be on the payroll when the foundry is in full operation.

Professor Charles W. Williams, University of Louis ille, was optimistic over the outlook, and said "statistics do not indicate a depression for 1949". He said he doubted if current business problems are more weighty than in other years.

NORTHERN CALIFORNIA GROUP STARTS PURCHASING COURSE

1 1

The 1949 Educational Course arranged by the Educational Committee of the Purchasing Agents Association of Northern California, got under way on March 1. The first session in the "How to Buy" course was conducted by George W. Aljian and was on the Psychology of Purchasing". In the following weeks of March the course included: Paper and Paper Products, Louis A. Colton; Stationery and Printing, Horace Duckenfield; Lumber, Howard D. Beebe; Packaging and Containers—Metal, Harold R. Morrison.

The ballance of the program is scheduled as follows: April 5—Paint and Protective Coatings, Carl M. Wilensky; April 12—Ferrous Metals, A. L. Wille; April 12—Non-Ferrous Metals, Ralph N. Jacobson; April 21—Traffic in Purchasing (speaker to be selected).

The course is open to members and to the personnel in the purchasing department of a member's company. The charge is six dollars.

SAGINAW VALLEY ASSOCIATION

A regular meeting of the Saginaw Valley Purchasing Agents Association was held on February 8 at the Bay City Country Club. Eiden Kaylor of A. T. Farrell Co., Saginaw, was the guest speaker. Mr. Kaylor recently completed a trip abroad and spoke on his experiences in visiting Greece and Turkey.

(Please turn to page 260)



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WESTERN MICHIGAN ASSN. TOURS NORGE PLANT

Members of the Purchasing Agents Association of Western Michigan toured the Norge plant in Muskegon on February 15, following a dinner and business session at the Cottage Inn.

The tour was conducted under the supervision of Harold R. Sharpe, personnel manager. Arrangements for the visit were handled by Jack Breyer and Sam Vanderjaan.

ANALYZING MARKET TRENDS TOPIC AT WASHINGTON MEETING

"Analyzing and Projecting Market Trends" was the topic of discussion at the monthly educational meeting of the Purchasing Agents Association of Washington, held Thursday evening, February 24 at the Seattle Y.M.C.A.

Featured speakers were Dr. Henry A. Burd, acting dean, College of Business Administration, University of Washington, and Frank Manning, sales and advertising manager, Continental Mills, Inc., chairman, marketing data committee, Seattle Chamber of Commerce.

An open forum discussion followed the speakers with Prof. Arthur Cannon of the University of Washington as coordinator. Dean Smith, purchasing agent, Sumner Iron Works, was chairman of the evening, assisted by E. A. Schlueter, northwest district purchasing agent, Standard Oil Company of California.

Association members visited the new "Post Intelligence" building, said to be the most modern and beautiful newspaper plant west of Chicago, on February 23.

The March 10 meeting of the association was held at the New Washington Hotel, Seattle. Bruce Shorts, Seattle attorney, spoke on "It Isn't the Law." D. P. Brewer, plant manager, Trumbull Electric Mfg. Co., spoke on "Business Outlook in the Electrical Field," and R. Guy Frederick, Purchasing Agent, Monsanto Chemical Co., Western Division, spoke an "Trends in the Chemical Industry."

FIRE CONTROL EXPERT GUEST AT HAWAII ASSN. MEETING

Fire safety is sadly neglected by many organizations in Hawaii, the Purchasing Agents Association of Hawaii was told by Col. E. K. Merritt, general manager of Fire Control, Ltd., at its regular luncheon meeting held in February.

Colonel Merritt spoke on the "Whys"

Colonel Merritt spoke on the "Whys" and "Hows" of fires, and said that they are caused by violation of fire regulations, carelessness and poor housekeeping conditions, which include improperly maintained fire equipment and lack of personnel trained in its use.

Herbert F. Cullen gave the members an outline of the educational program his committee will soon institute. Lionel G. Lino, treasurer and national director, told of the impending visit of Harold H. Cake, N.A.P.A. vice-president.

(Please turn to page 2 2)

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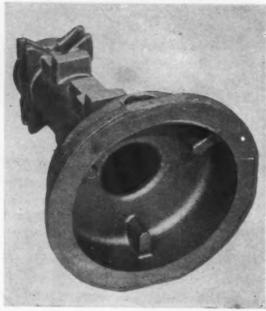
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PURCHASING IN EVOLUTION LANCASTER MEETING

"Purchasing in Evolution" was the subject of talk by George Henry, Associate Editor of PURCHASING Magazine, New York, at meeting of the Purchasing Agents Club of the Manufacturers Association of Lancaster, Pa., at Wiggins Plantation Room, in that city, on March

PAINTS, SOAP DISCUSSED AT DAYTON ASSN. MEETING

1 1 1

The Purchasing Agents Association of Dayton held a regular meeting on Thursday, February 10 at the Miami Hotel.

The program featured ten-minute talks by three speakers, as follows: R. H. Young, Davies-Young Soap Co., on "Soap as a Commodity"; A. I. Pruett, Thresher Paint & Varnish Co., on "Recent Trends in Paint"; and J. M. Purdy, Lowe Brothers Company, on "Chemistry of Paint" Ted Thompson served as program leader.

Many of the members present asked questions following the talks, and a lively discussion was held. The program concluded with a short sound movie, "The Paint Film".

Among the guests were fourteen members of the purchasing class of Sinclair College. The association sponsors and endorses a course in "Advance Purchasing" at Sinclair College. The course is planned so as to be a practical, comprehensive study of every-day buying techniques in the Dayton area.

Subjects covered involve every phase of purchasing, and field trips are made to representative industries, such as a manufacturing company, mill supply company, lumber company, foundry company, box manufacturer, steel mill.

Coordinator and head instructor of the course is Ted R. Thompson, buyer, Aero-Products Division, General Motors Corporation, who is assisted by guest speakers on specific topics of the course. Among the speakers are: H. D. Hussey, National Cash Register Co.; Robert C. Neff, Gebhart Folding Box Co.; Willard R. Schurene, Ohmer Co.; James A. Graham, Dayton Steel Foundry Co.; Robert O. Long, Standard Register Co.; Clarence D. Bucher, Dayton Rubber Co. Russell E. Wolf, East Dayton Tool and Die Co.; Robert Isenhart, Dayton Power and Light Co.; Edwin J. Thum, Specialty Paper Co.; Harold A. Tiemeyer, W. H. Kiefaber Co.; and Edward G. Sander, Monsanto Chemical Co.

1 1 1 ALABAMA ASSN. MEETING

A dinner meeting of the Purchasing Agents Association of Alabama was held at the Thomas Jefferson Hotel, Birmingham, Ala. on March 10. The guest speaker was Warren Whitney, vice-president of James B. Clow & Sons, National Cast Iron Pipe Division.

(Please turn to page 264)



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BUSINESS IN MOTION

To our Colleagues in American Business ...

The device you see pictured here is an automobile light switch which controls parking and driving lights. Probably few motorists have ever seen such a switch, because the body of it is concealed under the dash or back of the instrument panel. People see only the knob. Because the operation of such a switch is so simple and reliable, probably most people think it is equally simple in design.

The fact is, however, that its simplicity and reliability of operation are protected by design and materials that foresee the conditions and contingencies of use. This is typical of a great many products which

are taken for granted by people who never realize how much forethought has been given to the creation of hidden values that assure satisfaction.

Y Take the matter of selection of materials.
The switch uses steel in several types and

forms, brass, phosphor bronze, silver, canvas base bakelite, a felt washer to exclude dust, a plastic, and if you include the fuse, lead and glass. All told, there are some 20 main parts. Of these, four are made of Revere phosphor bronze, used for contacts, contactor, and rivets, these being the parts in which the special qualities of phosphor bronze are essential.

The fact that the use of Revere phosphor bronze is confined to four small parts illustrates a basic Revere policy, which is that we recommend Revere Metals only for the purposes for which they are better suited. If we were asked if we would recommend brass for the bracket and case, we would say that the steel being used is perfectly suitable, should last as long as the car, and has a minimum cost.

We like to sell Revere Metals, but not to our customers' disadvantage. Our Technical Advisors are in constant consultation with manufacturers and do not hesitate to suggest whatever material will enhance performance or save money. Recently, for example, one of these engineers found a customer using a phosphor bronze for a cover plate, and remarked

> that a certain nickel silver would serve as well and cost somewhat less, since it would have adequate springiness, strength, and corrosion resistance in that application. On the other hand, substitution of phosphor bronze for

nickel silver has been recommended from time to time. It all depends upon the needs of the specific application.

This attitude of Revere's is by no means unique; it is to be found throughout American industry. The one essential to make it resultful is that the supplier be taken as far as possible into the manufacturer's confidence, because only then can the supplier's knowledge be made available. Every company is entitled to use the brains as well as the products of the firms from which it buys. Are you employing both?

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ADULT EDUCATION SUBJECT AT NEW ORLEANS ASSN. MEETING

The regular monthly meeting of the Purchasing Agents Association of New Orleans was held at the Jung Hotel on February 14. Guest speaker was Dr. John Percy Dyer, Director of the University College and Assistant Professor of History in the College of Arts and Science, Tulane University. His subject was "Adult Education".

A color, sound motion picture "New Orleans—the International City", was also shown.

The March 14 meeting, also held at the Jung Hotel, featured the showing of a technicolor motion picture on the 1949 Sugar Bowl Classic, narrated by Harry Wisner. Economist Robert Elsasser gave a ten minute talk on current conditions.

SKF OFFICIAL ADDRESSES PHILADELPHIA ASSN. MEETING

Richard H. DeMott, vice president in charge of sales for SKF Industries, Inc., was the principal speaker at the February 10 joint meeting of the Purchasing Agents Association of Philadelphia and the Philadelphia Sales Managers Association.

Calling for joint action by the nation's buyers and sellers to take some of the guesswork out of production forecasts, Mr. DeMott warned that both must avoid the "cowpaths of the past, and work more harmoniously together than ever before if we are to prevent the pitfalls of the future."

"Producing the right things at the right time and in the right quantities", he said, "is a positive and urgent approach toward stabilizing and maintaining the national economy."

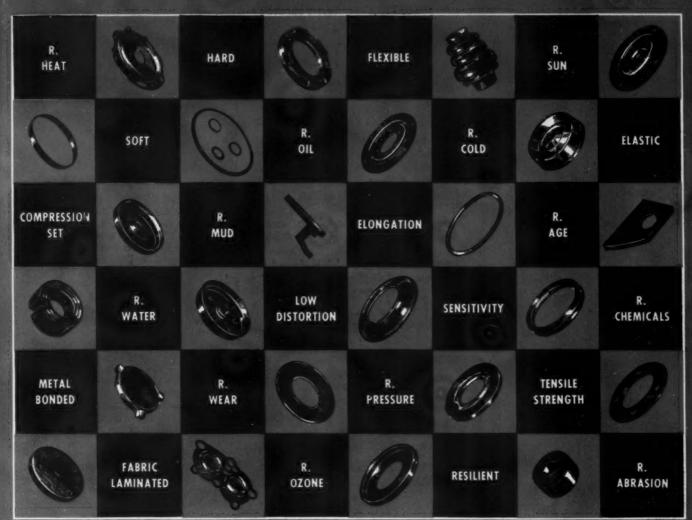
This could be achieved, he said, by a greater willingness on the part of the buyers to make known production requirements as soon as possible and by determined effort of salesmen to be of "real service—not just glorified order takers." In this way, he pointed out, management can effectively schedule factory facilities for goods that are immediately needed by consumers. He said "there already has been too much harmful guesswork in this direction."

SPRINGFIELD ASSN. HOLDS FIRST LADIES' NIGHT

The first Ladies' Night meeting of the Springfield Purchasing Agents Association was held on February 12. Guests from Toledo, Columbus and Cincinnati were present at the affair, which was held at the Shawnee Hotel. Gifts were provided for the ladies, and dancing followed the dinner.

Professor Krauss, Director of Business Administration at Wittenberg College, was the guest speaker at the February 23 meeting of the association held at the Shawnee Hotel. His timely and thought-provoking address resulted in a thirty-minute forum at the close of the talk, with many members participating in the discussion.

(Please turn to page 266)



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PUBLIC RELATIONS MAN SPEAKS AT AKRON MEETING

George A. Bowle, of the public relations department at the Firestone Tire & Rubber Company was the guest speaker at a dinner meeting of the Purchasing Agents Association of Akron, held on Tuesday, February 15 at the Woman's City Club. Mr. Bowle's subject was "Apple Polish".

BRITISH COLUMBIA ASSN. ACTIVE IN FEBRUARY

A regular meeting, a plant visit, and an educational meeting featured the activities of the Purchasing Agents Association of British Columbia in February. "How's Your Personality?" was the

"How's Your Personality?" was the topic of a talk by Volney Irons, advertising counsel and lecturer in the art of public speaking, who was guest speaker at the monthly meeting on February 8. The passing of Harold L. Taylor, C.N.R., first president of the association, was observed with a minute's silence.

Sixty-seven members (one-third of the membership) attended a plant visit to Canadian Bakeries on February 16. A plant visit at Canadian Western Lumber Co. was held on March 15.

The monthly educational meeting on February 22 was addressed by R. S. Davidson, industrial analyst of the B.C. Electric Company, whose subject was "The Advantages of Natural Gas to the Economy of British Columbia". The talk was of considerable interest as the possibility of a gas pipe line from Central Alberta to the Pacific Northwest appears quite likely in the near future.

Vancouver Island Branch

The program at the February meeting of the Vancouver Island Branch of the Purchasing Agents Association of British Columbia was in charge of Alf Mendum, B. C. Cement Co., of the educational committee

Papers dealing with the purchasing procedure followed in their respective companies were presented by Grahame Warburton of the Sidney Roofing Company, and by Sid Elkington of the Kyuquot Trollers. Both papers were followed by general discussion.

CENTRAL MICHIGAN ASSN. WINDS UP M.S.C. COURSE

The Tuesday, March 8, meeting of the Purchasing Agents Association of Central Michigan took the form of a closing session for the educational committee's first project, the class in industrial purchasing held at Michigan State College.

Following dinner at the college cafeteria, members of the association and the entire class in Purchasing gathered in a large lecture room, where a panel of experts conducted a "Town Meeting" discussion on purchasing. The association has been supplying speakers each week for the class, which is conducted by Phil Reagan.

(Please turn to page 268)







Whichever way you look at it.



accumulated knowledge





shipping service

With today's costs of manufacturing so high, it's the wise chemical buyer who considers his purchases from every angle. Price and specification alone are no longer basis enough for a buying decision.

There is a good deal more a buyer can expect-speed of delivery, technical service, big-plant capacity to assure continued supply, knowledge of the industry and experience with its problems. On all these counts, more and more manufacturers agree, "it pays to specify Solvay."

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CANADIAN COUNCIL ARRANGES FOR SPEAKERS FOR SMALL **ASSOCIATIONS**

The Council of Canadian Purchasing Agents Associations, has set up a plan under the chairmanship of J. R. Spears, United Steel Corp., Toronto, whereby speakers are available from the larger associations, to speak before the smaller groups of the Council. The first assignment under this program, was a talk on "Problems of Purchasing Agents", by A. Elton Clark, purchasing agent for Rolph-Clark-Stone, Ltd., Toronto, at meeting of the Central Ontario Purchasing Agents' Association, the latter part of February, in the Granite Club, Kitchener. Mr. Clark's talk was followed by a showing of the Bates' film "It's Good Business."

HOWARD LEWIS SPEAKER AT CHICAGO ASSN. MEETING

A regular meeting of the Purchasing Agents Association of Chicago was held on Thursday evening, March 10, in the Hotel Sherman Principal speaker was Prof. Howard T. Lewis, Professor of Marketing at the Graduate School of Business Administration, Harvard University. Professor Lewis' subject was "Where Do We Go From Here?"

STEEL COMPANY OFFICIAL GUEST OF FORT WAYNE ASSN.

The annual steel meeting of the Fort Wayne Association of Purchasing Agents was held on Monday, February 21 at the Chamber of Commerce. The principal speaker at the event which drew more than 300 persons, was John A. Ingwersen, vice-president of the Armco Steel Corporation, Middletown, O.

Noah Tillman, president of the association, presided at the affair. H. D. Lowe was general chairman:

Among the guests were numerous city officials and national officers of the association, including Nelson Gibbins, District 4 Vice President of N.A.P.A.

GEORGIA ASSOCIATION MEETING SCHEDULE

The educational program and meeting schedule of the Purchasing Agents Association of Georgia for the coming weeks has been issued. The educational sessions are held on Wednesday night at Georgia Tech University.

The schedule is as follows::

April 6-Chapter 15, "Price Policies" April 13-Chapter 16, "Price Policies" (continued)

April 20-Chapter 17, "Forward Buying and Speculation"

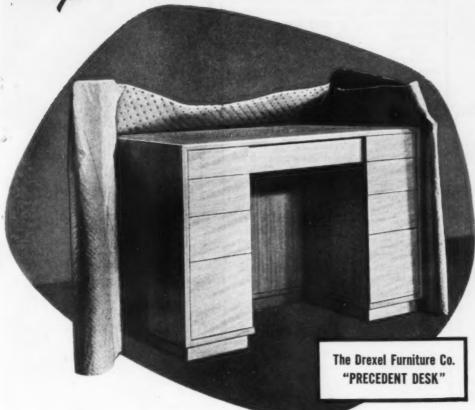
April 29-Regular meeting. Showing of film, "Domestic Use of Copper", issued by Anaconda Wire and Cable Co.

May 4-Chapter 18, "The Legal Status of the Purchasing Officers".

May 29-Plant visitation

(Please turn to page 270)

Kimpak" Float Packaging



Cuts shipping costs reduces damage in transit!

KIMPAK* offers revolutionary advantages to help solve your packaging problems. It provides a more effective cushion against shock than most bulkier materials. What's more, the neat, compact rolls are so easy to apply, so light in weight, it's more economical to use.

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OREGON ASSOCIATION CONTEST DRAWING GOOD RESPONSE

Considerable interest is being shown in the scholarship contest being conducted by the Purchasing Agents Association of Oregon among business administration students of two Portland colleges. Two winners in the contest will each receive \$200 cash scholarships as rewards for writing the best manuscripts on the subject of Purchasing.

The event, under direction of the association's educational committee, has drawn satisfactory response from students of both Portland University and Lewis & Clark College, according to Albert L. Wallace, chairman of the committee in charge-Approximately a half-dozen students from each school are doing research in preparation for writing or are actually engaged in manuscript preparation, it was disclosed in recent reports by P. S. McAllister, instructor of business administration at Lewis & Clark, and A. B. Peterschmidt, representing Portland University.

The manuscript contest, which is a new project for the Oregon association, is patterned closely after the Boffey Memorial Award Students' Contest, sponsored by the National Association of Purchasing Agents. Both Portland colleges have made possible the awarding of \$200 scholarships to each school's winning writer by matching the \$100 per school being posted by the Oregon association as award money.

An association judging committee will score competing papers on the basis of chought, 65 points; organization and presentation, 20 points; English and composition, 10 points; personal presentation, 5 points

Judging is to be completed prior to May 15. The association will be host to competing students at a meeting to be held in the near future, and will devote some program time to brief personal appearances by the contestants. The platform presence they display will be the basis for judging the personal presentation credit each receives toward contest totals.

STEEL SUBJECT AT MONTREAL STUDIES GROUP MEETING

The Studies Group meeting of the Purchasing Agents Association of Montreal held on March 8 at the Mount Royal Hotel featured a motion picture entitled "Highlights in Steel Making—Part 1, How Steel is Made". The picture begins with the unloading of the ore at the dock and follows the metal through the various operations up to and including the rolling of ingots on the blooming mill.

In addition, each member received an illustrated pamphlet entitled "Making Steel". The pamphlet explains by schematic drawing both hot and cold rolling of strip and sheets and the finishing operations usually performed on the flat rolled steel products.

The discussion leader was Richard Peck, assistant inspector of The Steel Company of Canada.

(Please turn to page 272)



The Southwest Tells the World!

For the second time in history Southwestern industry will be on parade in Fort Worth during the Southwestern Industrial Exposition to be held May 8-15. Plan now to attend.



Last year more than 125,000 visitors attended the first Southwestern Industrial Exposition to see interesting displays of over 200 exhibitors of Southwesternmade products.

Purchasing Agents Make Many Contacts

The 1949 Southwestern Industrial Exposition affords Purchasing Agents an opportunity to make many personal contacts with Texas, Louisiana, Arkansas, Oklahoma, and New Mexico manufacturers. They save freight, too, by buying from Southwestern manufacturers.

Southwestern Industrial Exposition ★ May 8-15

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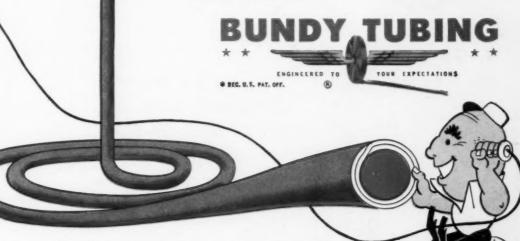
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Next, a heating 3 process fuses bonding metal to basic metal. Cooled, the double walls have become a strong ductile tube, free from scale, held to close dimensions.

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CHATTANOOGA ASSOCIATION HEARS CLIFTON E. MACK

The regular monthly meeting of the Purchasing Agents Association of Chattanooga was held Tuesday evening, February 11, at the Hotel Patten. Guest speaker was Clifton E. Mack, Director, Bureau of Federal Supply, Washington, D. C.

"COMMUNISM IN INDUSTRY" CLEVELAND ASSOCIATION TOPIC

The regular meeting of the Purchasing Agents Association of Cleveland was held at the Hotel Cleveland on February 18.

Guest speaker was Edward P. Morgan, former administrative assistant to J. Edgar Hoover, director of the Federal Bureau of Investigation, who also served as special agent in charge of FBI field offices and inspector of FBI headquarters in Washington. Mr. Morgan, who has made a special study of fascism, communism and other totalitarian ideologies, and who is now practicing law in Washington, spoke on "Communism In Industry".

"HOW TO ELEVATE POSITION OF P.A." CONN. TOPIC

The February dinner meeting of the Purchasing Agents Association of Connecticut was held at the 1711 Inn, Meriden, on Washington's Birthday. One hundred and thirty members and guests heard John E. Echlin, president of the Echlin Manufacturing Company give an interesting and informative talk on "How to Elevate the Position of the Purchasing Agent". President Raymond Bingham presided.

"LAMPS AND LIGHTING" COLUMBUS MEETING SUBJECT

A regular monthly meeting of the Purchasing Agents Association of Columbus was held at the Fort Hayes Hotel on Monday, February 14.

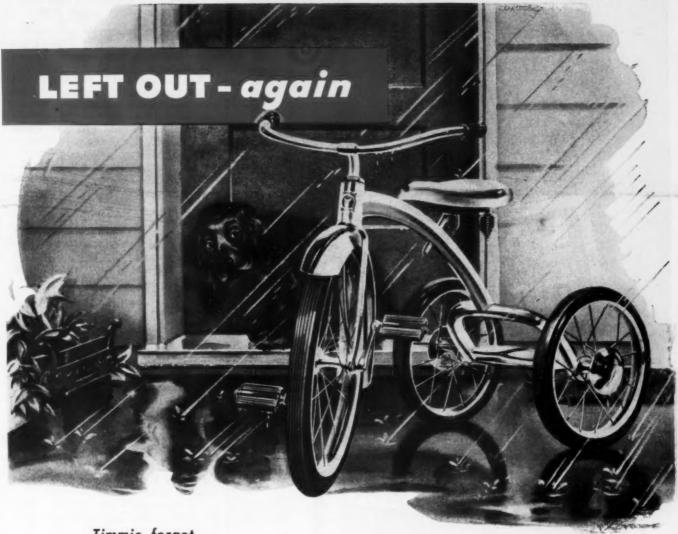
James F. Ketch, staff and field engineer with the General Electric Company was the guest speaker, on the subject "Lamps and Lighting". Mr. Ketch has devoted more than 30 years to the studying of lighting science and to the development of methods of practical application.

ANNUAL PACIFIC NORTHWEST CONFERENCE ON APRIL 22-24

The 13th Annual Pacific Northwest Purchasing Agents Conference will be held in Seattle on April 22, 23 and 24 at the Olympic Hotel.

Luther C. McIver, chairman of the committee in charge, has stated that panel discussions will be held on the morning of April 23. Ralph O. Keefer, president of the National Association of Purchasing Agents, will be the principal speaker at the afternoon business session on

April 23.
(Please turn to page 274)



Timmie forgot.

But Timmie's new aluminum bike doesn't mind.

Because ALUMINUM LASTS.

That's going to please Timmie's parents. They bought this bike because it was light, easy for him to handle. Nature made aluminum light. But a lot of other things had to happen, to make aluminum that would last.

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Hundreds of Alcoa people spent thousands of hours on the research that made those things possible. They started sixty years ago and they're still at it. Other hundreds spent thousands of hours testing the results—every step of the way. So we could say, "Alcoa Aluminum lasts!" and mean it.

That makes better bikes. Barn roofs. Yard furniture. Window frames. All the things that didn't use to last, unless you painted them well and often.

That makes things of Alcoa Aluminum worth looking for. Worth buying.

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"EFFECTIVE SPEAKING FOR THE P.A." TORONTO ASSN. TOPIC

The regular meeting of the Purchasing Agents Association of Toronto was held at the Royal York Hotel on Wednesday, March 9.

Guest speaker was C. W. Wright, well known throughout Canada as one of the most successful speech and sales instructors in the Dominion. He is currently conducting the second course in speech at the Ford Motor Company at Windsor. Mr. Wright's subject was "Effective Speaking for the Purchasing Agent".

CEMENT CASE DECISION TOPIC AT BUFFALO ASSN. MEETING

The regular monthly meeting of the Purchasing Agents Association of Buffalo was held at the Hotel Statler on February 9, and featured a commodity forum and discussion.

Principal speaker was R. E. Daniels, vice-president of Federal Portland Cement Company, who spoke on the "U. S. Supreme Court Cement Case Decision". His remarks prompted a lively question and answer forum.

Membership application of Roy W. Towne, Buffalo Pipe and Foundry Co., and Harry H. Martin, Colonial Radio Corp., were approved.

PITTSBURGH ASSN. MEETING FEATURES MEMBER TALKS

A closed meeting of the Purchasing Agents of Pittsburgh was held at the Hotel William Penn on February 15. The theme of the meeting was "How

The theme of the meeting was "How Are You Doing?", and featured short papers by a representative group of members outlining the situations in their own industries. An open forum followed.

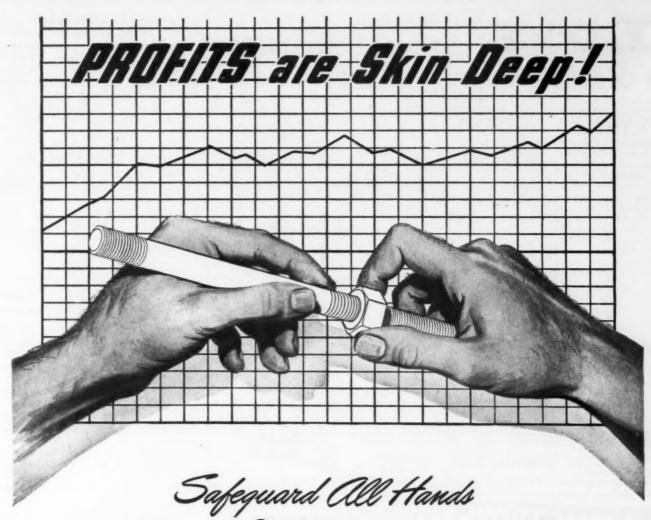
"BLUEPRINTS FOR THE FUTURE" RHODE ISLAND ASSN. TOPIC

A regular meeting of the Rhode Island Purchasing Agents Association was held at the Narragansett Hotel, Providence, on February 28. The principal speaker was Frank T. Samuel, student of geopolitics and economics.

A commodity forum under the direction of Joe Fogarty was presented in the afternoon, followed by a general discussion on purchasing procedure. The panel of experts for the commodity discussion consisted of Benjamin Baylis, containers; Alfred Logan, paper; John Davies, nonferrous metals; William Hunt, McGill Charts.

7 7 7 FORT WORTH MEETING

A regular dinner meeting of the Purchasing Agents Association of Fort Worth was held at the Worth Hotel on Tuesday, February 15. Guest speaker was Henry S. Scott, chemist, dairy and poultry division, Armour & Co., and Fort Worth Poultry & Egg Company Laboratories. His subject was "Some Recent Trends in the Dairy Industry".



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A quick-acting, thorough cleaner-LAN-O-KLEEN contains no harsh ingredients or excessive alkali. Prepared of a fine cornmeal base, it effectively removes deep-rooted grit, soil and grime-yet it's gentler on sensitive skins. Nor is that all! LAN-O-KLEEN is superfatted with a higher percentage of soothing, beneficial lanolin than are ordinary super-fatted soaps. Impregnated into LAN-O-KLEEN by an exclusive process, this lanolin has been proved to have a retarding effect upon the defatting action of soap. As a result, the skin gets added protection against natural oil-losses.

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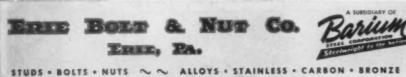
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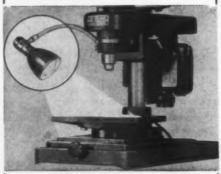
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CANTON ASSOCIATION HEARS TRAVEL TALK

The Purchasing Agents Association of Canton met in the Onesto Hotel on February 16, with President H. A. Grauman in charge. Guest speaker was Charles E. Firestone, Canton architect, who gave an illustrated talk on his trips to Mexico, Central and South America.

7 7 7 CENTRAL ONTARIO MEETING

The February 22 meeting of the Purchasing Agents Association of Central Ontario was held at the Granite Club, Kitchener, with Elton Clarke of Rolph, Clarke, Stone Limited as guest speaker. Mr. Clarke, a member of the Toronto Association, brought with him a film entitled "It's Good Business".

1200 REGISTER FOR NEW YORK PURCHASING-SALES DINNER

Lewis H. Brown, chairman of the board, Johns-Manville Corporation, New York, N. Y., was the principal speaker at the annual Purchasing-Sales Dinner held by the Purchasing Agents Association of New York, at the Hotel Commodore, New York, February 15. Mr. Brown spoke on the subject, "What's Ahead for America". His talk appears elsewhere in this issue.

The meeting was presided over by President Donald H. Lyons of the New York association, who in the course of a brief welcome to the 1200 purchasing agents, salesmen and their friends who attended the meeting, stated that "salesmen and purchasing agents are important partners in progress", emphasizing that there must be close cooperation between purchasing agents and salesmen in the interest of better purchasing.

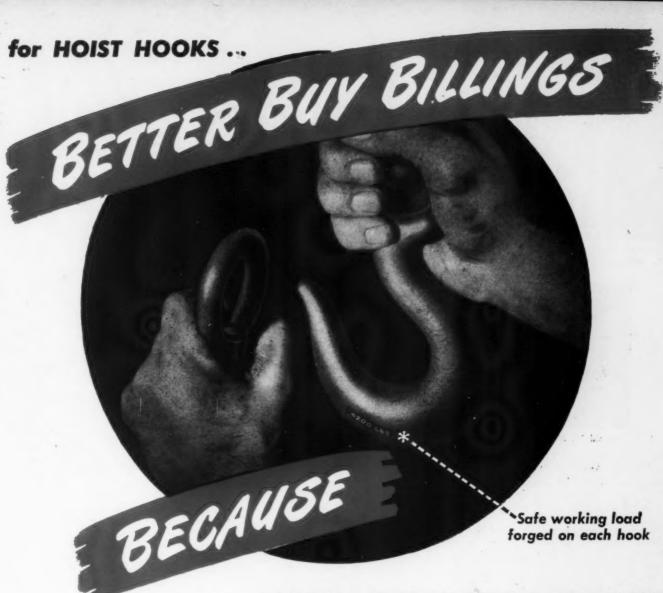
President Lyons next introduced Ralph O. Keefer, Aluminum Company of America, Pittsburgh, Pa., president of the National Association, Mr. Keefer stated that the national body, which now has 12,000 members, had but 3700 members in 1937. Mr. Lyons next introduced Executive Secretary-Treasurer George A. Renard of the National Association who briefly reviewed general conditions, stressing the need for following sane sales and purchasing policies.

RECENT KALAMAZOO ASSOCIATION MEETINGS

The Purchasing Agents Association of Kalamazoo, meeting in the Columbia Hotel on February 10, heard a talk on taxes by Duncan Rice of L. Scudder & Co. E. E. Scharer was chairman.

The February 24 meeting featured a film entitled "Modern Fire Brick Manufacture", produced by A. P. Green Co., Marico, Mo. J. C. Cobill was chairmen.

Mexico, Mo. J. C. Cahill was chairman.
Dr. A. E. Schneider, of the business education department of Western Michigan College was the guest speaker at the March 10 meeting. His subject was "Management Aspects of Your Job".
J. W. Hartung was chairman.



DROP FORGED WELDLESS EYE BOLTS AND EYE NUTS



Billings Carbon Steel Eye Bolts can be furnished blank or threaded, with or without shoulder. If threaded, U. S. S. threads run to within $\frac{1}{2}$ " of shoulder (or eye). Billings Eye Bolts have the same 100% safety factor as Billings Hoist Hooks.

Billings Carbon Steel Eye Nuts are smoothly tumbled. Carried in stock blank or with U. S. S. threads from %" to 2". Specials including Tobin bronze nuts can be furnished.

Safety Factor — The safe working load is forged on each Billings Drop Forged Hoist Hook. The elastic limit of each hook is approximately twice the working load assuring a safety factor of 100%. In addition, the load required to straighten out a hook is four times the safe working load.

Sizes — Billings Drop Forged Hoist Hooks come in a variety of sizes from a small hook with an inside eye diameter of 34" and safe load of half a ton to large hooks with an inside eye diameter of 234" holding a safe load of 634 tons. Throat openings are proportionate, running from 1" to 3".



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PERSONALITIES in the NEWS

Harold W. Macintosh has been appointed Treasurer of L. O. Koven & Brother, Inc., Jersey City. Mr. Macintosh, who



Harold W. Macintosh

has been in charge of Purchasing and Stores Control for the company for the past 29 years, will continue these activities in addition to his new duties.

William N. Brown has been appointed Chicago District Purchasing Agent of American Steel & Wire Co., according to an announcement by F. E. Chesney, Purchasing Agent of the U. S. Steel subsidiary. He succeeds I. E. Bowen who has been named Assistant to the Purchasing Agent, and who will continue to maintain his headquarters in Chicago. Headquarters of the purchasing department are located at the company's general offices in Cleveland.

Mr. Brown, who attended Dartmouth College, the University of Michigan, and Fenn College, has been associated with the Wire Company since 1942. Mr. Bowen joined the company in 1899, and has held various purchasing positions since 1910.

Robert Tolbot has succeeded C. A. Shassey as Purchasing Agent for Puget Sound Plywood Company, Tacoma, Wash.

Norman J. Dowling has been appointed Assistant Purchasing Agent for the Towmotor Corporation, Cleveland, O.

John A. Gorney has been named Assistant Purchasing Agent at the Western Automatic Machine Screw Co., Elyria, O.

Kenneth Grieg has been named Purchasing Agent of American Trust Company, San Francisco, Calif. He succeeds Harry H. Mullins, who has been promoted to Assistant Vice President.

Vincent dePoul Goubeou has been elected Vice President in charge of the Materials Department of the RCA Victor Dirision, Radio Corporation of America, Camden, N. J.

Mr. Goubeau joined the RCA Victor Division as Director of Materials in October, 1945. He had previously served for three years as a civilian in the Navy Department, which he joined as Chief of the Contract Clearance Division, Office of Procurement and Materiel, attached to the Secretary's Office. He organized this division and administered it until December, 1943, when he was elevated to Deputy Chief of Procurement. He became Chief of Procurement in December, 1944, and remained in that position until V-J Day.



Vincent deP. Goubeau

Before World II, Mr. Goubeau was associated for 20 years with the United Fruit Company. He was engaged for the most part in purchasing activities of the company, serving as Assistant Buyer, Buyer, and finally Purchasing Agent. He is past President of the New England Purchasing Agent's Association and a former director of the National Association of Purchasing Agents.

Henry C. McCoslin has been appointed General Purchasing Agent of Willys-Overland Motors, according to an announcement by John S. Conant, Director of Procurement.

Wesley H. Lowell has been appointed Purchasing Agent in charge of raw materials; Thomas O. MacDonald, Purchasing Agent in charge of castings, forgings, patterns, and dies; and George H. Kraus, assistant to the Director of Procurement.

Mr. McCaslin, a former Vice President of Kaiser-Frazer Corporation has been associated with the automobile industry since 1924. He was with the Durant Motor Corporation from 1924 to 1930.

He was with Willys Overland for three years as design engineer and later became industrial engineer for the Cities Service Oil Company.

From 1936 to 1939 he was General Manager of the Shuler Axle Co., Louisville, Ky., leaving that position to become chief engineer for Willys-Overland. Mr. McCaslin was Vice President in charge of engineering for the Kaiser-Frazer Corporation from 1945 to 1947.

Wilton M. Hoog has been promoted to manager of the purchasing department of the New England Mutual Life Insurance Company, Boston, Mass., and will be assisted by F. Donald Batés. The department is under the general supervision of Alfred W. Jones, Purchasing Agent.

Chorles H. Dry, for more than 20 years Assistant Purchasing Agent for the Cannon Mills Company, Kannapolis, N. C., has been made Purchasing Agent. He succeeds the late J. Y. Pharr. Mr. Dry is president of the Carolinas-Virginia Purchasing Agents Association.

Benjamin Cruce has been named Purchasing Agent of the city of Austin, Tex.

R. Roy Taylor has been appointed to succeed Julian J. Fourrier as City-Parish Purchasing Agent of Baton Rouge, La.

A. S. Trivison, Purchasing Agent for The Columbian Vise and Manufacturing Company, Cleveland, O., has been appointed a member of the company's board



A. S. Trivison

of directors, according to an announcement by Harold F. Seymour, president. Mr. Trivison has been with the company for 23 years.

(Please turn to page 280)



ELIMINATES COSTLY CORROSION PROBLEM

Textile Manufacturer Changes to a "Job Proved" Sun Processing Oil and Cuts Production Costs

A manufacturer of cotton fabrics was having corrosion trouble on his textile machines. It resulted from the use of an expensive processing oil. Moreover, the oil had to be sprayed on the fibres by special rented equipment.

Changing to a "Job Proved" Sun processing oil, the manufacturer not only licked the corrosion problem, but was able to replace the rented equipment with low-cost, standard atomizing machines. In addition, there was a saving of \$2,000 in two years on the cost of oil.

This is typical of the service rendered and the savings made possible in many different kinds of industrial plants where Sun petroleum products are used. In one year, an automobile manufacturer saved \$1,440 by adopting Sun Tableway Lubri-

cant on the slides of machine tools... a paper mill adopted an adhesive Sun grease that didn't drip, estimated a \$2,900 saving in labor and cleaning costs...a coal mine saved \$1,664 by changing to a Sun waterproof grease for mechanical loaders.

To get the latest information about Sun "Job Proved" products for your industry, call the nearest SunOffice, or write Department PU-4.

SUN OIL COMPANY · Philadelphia 3, Pa.

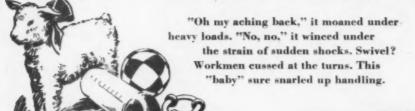
In Canada: Sun Oil Company, Ltd.
Toronto and Montreal

SUN PETROLEUM PRODUCTS

"JOB PROVED" IN INDUSTRY



The Caster That Had To Be Babied



born to
take a beating
cuts handling costs

Here is the Bond all-steel caster that welcomes brutal punishment—day in, day out. Heavy metal construction removes danger of breakage. The Bond 40-A swivels with ease on hardened ball races. It is pressure lubricated. This sturdy caster does many good turns during its long service life.

Every caster in the complete Bond line is designed for actual working conditions. You'll find the caster that's exactly right for your needs in the Bond Catalog K-38. Send for your free copy.

BOND FOUNDRY & MACHINE COMPANY
MANHEIM • PENNSYLVANIA



S. V. McCollum, regional petroleum engineer for Continental Oil Company, Fort Worth, Tex., has been named Assistant Purchasing Agent of the company at Ponca City, Okla.

Bryon Oldhom has been appointed Purchasing Agent for the Houston, Tex., milk plant of the Borden Company.

S. E. Wellman has succeeded Frederick Schmidt as Purchasing Agent for the Olympia Brewing Company, Olympia, Wash.

Henry W. Gadsden, Director of Pharmaceutical Production and Engineering, Sharp & Dohme, Inc., Philadelphia, Pa., has been named District Chief of the Philadelphia Ordnance District.



Henry W. Gadsden

In this civilian post, Mr. Gadsden will serve on a part-time basis. The military and civilian staff are supervised in their daily operations by the Deputy District Chief, an Army officer.

The Philadelphia Ordnance District is responsible for current ordnance procurement and for industrial mobilization planning in an area comprising eastern Pennsylvania, southern New Jersey, Delaware, Maryland, District of Columbia, Virginia, North Carolina and South Carolina.

Charles Gordon Grimes has been appointed Purchasing Agent of the Plume & Atwood Manufacturing Company, Waterbury, Conn. Mr. Grimes joined the company's purchasing department in 1946, after spending several years in the armed services.

R. E. Bongert has been appointed assistant to the Purchasing Agent of the FHP Motor Divisions of the Fort Wayne (Ind.) Works of the General Electric Company.

E. W. Ingram, formerly secretary, was recently elected Vice President and Purchasing Agent of the White Castle System, Inc., Columbus, O., at a meeting of stockholders and directors.

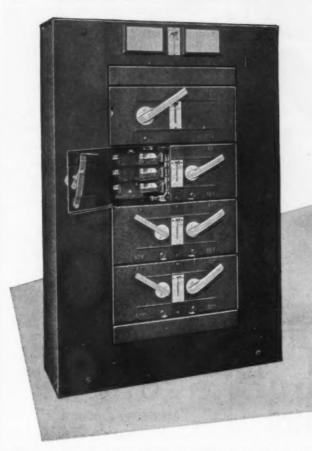
William J. McKinney has been appointed State Purchasing Agent of Illinois by Governor Stevenson. Mr. McKinney succeeds Walter R. Youngberg, who recently resigned.

cently resigned.

Mr. McKinney is a former purchasing agent and assistant comptroller of the civil works administration in Illinois.

(Please turn to page 282)

Switchboard that thinks twice of tomorrow



Switch head bracket attached to the operating lever pushes the head (enclosing moving contact) in and out on the stationary contacts.

Steel spring for pressure contact.

Moving contact (copper slug):

Close-fitting partitioned arc cham-

ber confines and snuffs out all in-

cipient arcing.

When operated to the OFF position, the Clampmatic spring accelerates disconnect action.

When operated to ON, the moving contact first engages the stationary contact prongs, before the spring moves down.

3 In full ON position, the moving contact fits tightly between "Line" and "Load" contacts underfull pressure by the Clampmatic spring.

Vacu-Break Switchboards are available with circuits ranging from 30 Amps. to 600 Amps., 2 & 3 pole, 575 Volts and less.

THIS BullDog Vacu-Break Switchboard looks at the future with two definite factors in mind.

First is dependability of service that can be relied upon through the years. Second is flexibility to meet the changes which may come to the electrical system it controls and protects.

Switch units in this switchboard are famous Bull-Dog Vacu-Break units, insuring reduced arcing with minimum maintenance. Contacts are made and broken in a special arcing chamber, where arcs are quickly snuffed out by lack of oxygen. Burning and pitting of contacts is curbed, prolonging switch life.

"Clampmatic Contacts" are another feature of safety switch units. Sturdy metal spring "fingers" hold contacts together tight as a bolted connection when switch is ON, release quickly and smoothly when it is thrown OFF. "Clampmatic" means cool operation and high conductivity.

If circumstances dictate extensive circuit changes, it is simple to adjust this switchboard. Individual units are interchangeable and replacement or additions can be made quickly to fit the new circuit conditions.

Call a nearby BullDog Field Engineer for complete

information on the Vacu-Break Switchboard. Let him show you an actual installation near your plant.

BullDog Field Engineers welcome the opportunity to sit in with you during the early planning stages of a building project. Their knowledge of electrical distribution layout can mean savings in installation costs, as well as efficiency and reliability in actual operation. Why not take advantage of this service?

BULLDOG ELECTRIC PRODUCTS COMPANY

DETROIT 32, MICHIGAN • FIELD OFFICES IN ALL PRINCIPAL CITIES IN CANADA: BULLDOG ELECTRIC PRODUCTS OF CANADA, LTD., TORONTO

BuilDog manufactures Vacu-Break Safety Switches • SafToFuse Panelboards • Superba and Rocker Type Lighting Panels • Switchboards • Circuit Master Breakers • "Lo-X" Feeder BUStribution Duct • "Plug-In" BUStribution Duct • Universal Tral-E-Duct for flexible lighting • Industrial Tral-E-Duct for portable tools, cranes, hoists.



HEADQUARTERS FOR ELECTRICAL DISTRIBUTION

RITCO

MACHINED FORGINGS
and SPECIAL FASTENERS

Here's your source for steel or non-ferrous parts of tough structure and close dimensional accuracy. RITCO Bright Finish drop forgings in weights from ¼ lb. to 15 lbs. are smooth, flash-free — require minimum machining. Come to RITCO for precisely machined, ground or threaded parts and assemblies. Let us know your requirements: estimates gladly submitted.

PREMEMBER RITCO FOR DROP AND UPSET FORGINGS
COMPLETE MACHINING FACILITIES
SPECIAL BOLTS, NUTS AND STUDS
MILLED BODY BOLTS

RHODE ISLAND TOOL COMPANY

148 West River Street
P. O. Box 1516, Providence 1, R. I.

Serving American Industry Since 1834



William H. Butler III has succeeded Jerome Richeimer as Purchasing Agent for the County of Essex, New Jersey.

Charles L. Plant has been named Purchasing Agent for American Aniline Products, Inc., New York, N. Y. He succeeds L. B. Finke.

Albert Pleydell, former New York City Commissioner of Purchase, has been appointed instructor of management and industrial relations at the School of Commerce, New York University. A past president of the National Institute of Governmental Purchasing, Mr. Pleydell is vice-president of Survey Institute, New York, management consultants.

PAUL FIELDEN

Paul Fielden, 62, Director of Purchases of Norton Company, Worcester, Mass., died recently in Worcester.

Mr. Fielden had been associated with Norton Company for almost 30 years, joining it as assistant credit manager in 1919. He was at one time president of the National Association of Credit Men.

CARL P. RIEGGER

Carl P. Riegger, 73, General Purchasing Agent for the Grinnell Company, Providence, R. I., died recently at his home after a long illness.

CHARLES G. PRICE

Charles G. Price, for the past 11 years a Purchasing Agent for the Armstrong Cork Company, Lancaster, Pa., died on March 2 at the age of 51. He had been a purchasing agent for various companies since 1923, and joined Armstrong in 1938.

LLEWELYN E. JONES

Llewelyn E. Jones, 54, Purchasing Agent of the Heywood-Wakefield Company, Gardner, Mass., died on February 17, while on a business trip. He had been with the company since 1915, and Purchasing Agent since 1931.

AMONG THE COMPANIES YOU BUY FROM

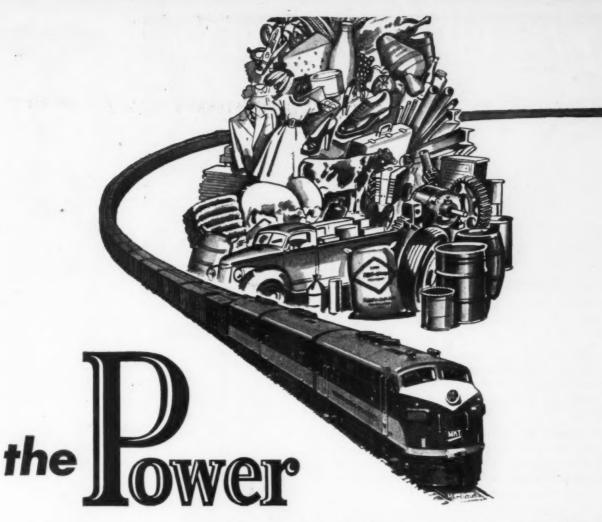
Knoxville, Tenn.—Ansul Chemical Company. A new district office has been opened here, under the direction of Joseph F. Ziemann and Troverse F. Schmidt.

Service and Sales Limited, T. F. Rose, formerly Cincinnati branch manager of The Timken Roller Bearing Company's Service Sales Division, has become manager here, succeeding the late C. E. Webster.

Springfield, O.—Thompson Grinder Company. John C. Wilson has been elected a director and vice-president in charge of sales.

(Please turn to page 286)





to move Mountains of Freight



NEW MERCHANDISE CARS

... hundreds of them, augment Katy's fleet of heavy cargo transportation.



NEW HOPPER CARS

... available for quick, efficient, versatile service to shippers.



NEW DIESEL POWER

...to expedite transfer of your freight at major terminals and road haul it with speed and economy.

YOURS ON THE Katy

SMOOTH DIESEL POWER... to deliver your goods in perfect condition. High-speed power that permits scheduling to suit your every shipping need.

DIESEL POWERED SWITCHERS... at important terminals to expedite the transfer of your carloads to markets and factories.

RADIO POWER...a magic service PLUS to speed handling of your freight.

Katy's equipped for even heavier, longer hauls, smoother handling of your shipments—dependable, on-time service between Texas and Oklahoma and the North. For careful, precision shipping to and from the Southwest...ship KATY!

MISSOURI-KANSAS-TEXAS LINES

Ship Via The Southwest's Main Supply Line

KATY BULLET

KATY KOME

KATY KLIPPER

Daily from Kansas City and St. Louis to all main Southwestern points. Katy's fastest—Southbound daily from St. Louis to all main-line points. Daily, St. Louis and Kansas City to Oklahoma and Texas,

KATY PACKER

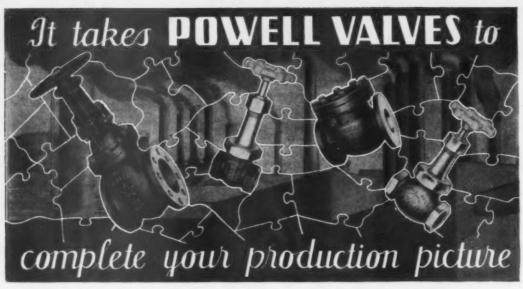
Northbound daily, Fort Worth to Kansas City and St. Louis,

"72" FAST FREIGHT

Daily from Texas and Oklahoma to Kansas City and St. Louis.

Also... Convenient Double Daily Service between St. Louis and Kansas City.





Everyone knows that in putting together a jig-saw puzzle picture it's simply a matter of putting the right piece in the right place.

In the case of flow control equipment the principle is the same. Because, only by installing the right valve in design and material—to meet all the requirements of a specific service, can failures due to misapplication be eliminated.

Fortunately Powell has been applying this principle for more than a century. The result is a line of valves which is so complete that, for any set of flow control conditions encountered today, there's a Powell Valve that exactly fits all requirements.

So why not let Powell Engineers help you to complete your production picture by selecting valves that are specifically designed for your individual flow control services. Write us for details.



Fig. 241—Large 125-pound fron Body Bronze Mounted Globe Valve. Made in sizes 2" to 16", inclusive. Has outside screw rising stem, bolted flanged yoke and regrindable, renewable bronze seat and disc. Also available in All Iron.



Fig. 560—200-pound Bronze Regrinding Horizontal Swing Check Valve. Screwed ends, screwed-on cap and regrindable, renewable bronze disc.

The Wm. Powell Co., Cincinnati 22, Ohio DISTRIBUTORS AND STOCKS IN ALL PRINCIPAL CITIES



Fig. 500 — 125-pound Bronze Gate Valve with screwed ends, screwed-in bonnet, inside screw rising stem and tapered wedge: solid in sizes ½" to ¾", incl.; double in sizes 1" to 3", incl.

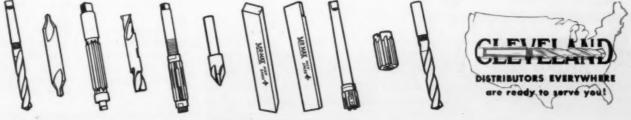
Fig. 1503—Class 150-pound Cast Steel Gate Valve with flanged ends, bolted flanged yoke, outside screw rising stem and tapered solid wedge.

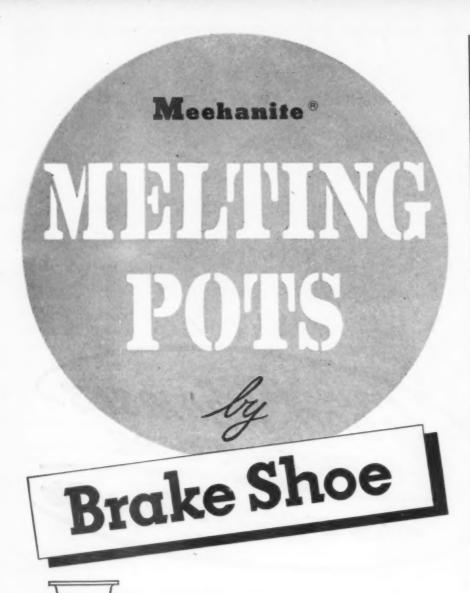


Fig. 1793—Large 125-pound Iron Body Bronze Mounted Gate Valve. Made in sizes 2" to 30", inclusive. Has outside screw rising stem, bolted flanged yoke and tapered solid wedge. Also available in All Iron for process lines.

POWELL VALVES







A reliable and economical source of melting pots is found in castings by Brake Shoe of Meehanite metal. Reliable because of Brake Shoe's wide metallurgical knowledge and thorough foundry techniques that protect structural soundness and physical properties. Economical because of the longer life expectancy of a sound casting closely matched to its service.

In melting pots, Brake Shoe uses a type of heat-resisting Meehanite chosen to withstand constant heating, intermittent heating and cooling, flame impingement and contact with molten metals. Whether you require the type used for melting aluminum or that for melting lead or zinc, pouring type or holding type, count on these castings to resist premature cracking, warpage, growth, oxidation and corrosion.

A list of available sizes and prices will be sent you on request.

2220



BRAKE SHOE AND CASTINGS DIVISION 230 PARK AVENUE, NEW YORK 17, N. Y. New York, N. Y.—Union Bag & Paper Corporation. S. K. Bradley, formerly director of chain store sales, has been promoted to eastern district manager of Multiwall sales. R. B. Bennett has been promoted to a new post, district manager of flexible packaging sales.

New York, N. Y.—A. H. Ross Company, Inc. W. A. Radford, 509 Fifth Avenue, has been appointed New York representative.

Chicago, III.—The Goodyear Tire & Rubber Co. J. A. Weatherford has been named special sales representative.

Tacoma, Wash.—Graybar Electric Co., Inc. R. J. Franzen is now manager of the company's branch here.

Monsfield, O.—Ohio Brass Company. Louis J. Ott has been appointed general



Louis J. Ott

sales manager of the company. Mr. Ott, who has been advertising manager since 1935, is succeeded by R. A. LeFevre.

Detroit, Mich.—Illinois Tool Works. Edward D. Wiard has been appointed to represent the company in this area, and is now in charge of the sales office at 2895 East Grand Boulevard.

Nework, N. J.—Westinghouse Meter Division. John M. Nelson has become manager of meter sales, and J. F. Chapman has succeeded him as manager of relay sales.

San Francisco, Colif.—The J. L. May Company. Western Slope Sales Service, 788 Mission St., has been appointed representative in the Pacific Coast area.

St. Paul, Minn.—Hydro-Line Manufacturing Co. C. E. Gobeil Company, 2635 University Ave., has been appointed representative in Minnesota, North Dakota, and part of Wisconsin.

Chicago, III.—Aluminum Company of America. Central Steel and Wire Company has been appointed distributor of aluminum fasteners in the midwest.

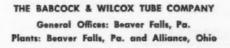
Boston, Moss.—The B. F. Goodrich Company. Raymond P. Russell has been named manager of the Boston district of the company's industrial products sales department, succeeding John M. Cooney, who has been transferred to Akron, O.

(Please turn to page 288)

Answers : MOST corrosion









A full range of Stainless, Alloy and Carbon Steel Tubing for All Pressure and Mechanical Applications.

TA 14655



EMBLEM OF QUALITY

SEWING MACHINES

It's little things that make a sale. Take a sewing machine for instance — the delicate, precise action of the shuttle — the quiet, smooth running gears — no skipping of stitches — these things give to the prospective buyer a solid feeling of dependability — a pride of ownership that everything about it is right.

Even the screws used in assembling such a machine have features which add definitely to the quality of the product. For because of snug fitting threads, true slots, heads which center and draw up tightly, everything is held in its proper place and parts work as intended — at the right time, and in the right places.

It's true, quality attracts quality.

That's why -





Write for Catalog No. 48

ELCO TANK SCREW CORPORATION

1912 BROADWAY ROCKFORD, ILLINOIS

WOOD SCREWS • MACHINE SCREWS • MACHINE SCREW NUTS
DRIVE SCREWS • CAP SCREWS • LAG SCREWS • SPECIAL SCREWS
TAPPING SCREWS • STOVE BOLTS • PIPE PLUGS

Boltimore, Md.—Hyster Company. Mc-Call-Boykin Co., Inc., Calvert and 20th Streets, is a new distributor of the company's lift trucks, straddle trucks and mobile cranes.

Pittsfield, Moss.—General Electric Company. Robert G. Baumann has joined the company's chemical department as assistant sales manager of silicone products.

St. Louis, Mo.—United States Steel Supply Company. Russell J. Skinner has been appointed assistant district manager.

Philadelphia, Pa.—Link-Belt Company. J. H. Oakes has been appointed sales manager, enclosed drives, with head-quarters at the company's plant here. Harry F. Kurz will assist him as representative, with headquarters at the Pershing Road plant in Chicago.

New York, N. Y.—Kennametal, Inc. The company has moved its New York office to 11 West 42nd Street. L. D. Morton is acting manager.

Pittsburgh, Pa.—The H. M. Harper Company. Donald Sherwood has been ap-



Donald Sherwood

pointed district manager of the newly established office here. He was formerly located at the Cleveland branch office.

Mishawaka, Ind.—McQuay, Inc. R. W. Schreiber, 820 Battell St., has been appointed representative in Wisconsin, northern Illinois, northern Indiana, and Michigan.

Cleveland, O.—Eaton Manufacturing Company. Frank Edwards has been promoted to sales manager of the company's heater division.

Schenectudy, N. Y.—General Electric Chemical Department. Harold G. Deters has joined the chemical division as assistant sales manager of alkyd resin products.

New York, N. Y.—Shell Development Company, Inc. John W. Pegg has been named manager of the company's office here.

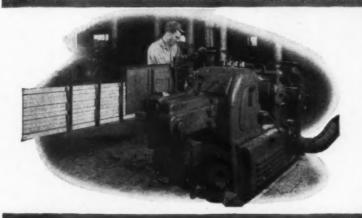
Boston, Mass.—Graybar Electric Company. E. E. Martin has been named to succeed W. H. MacCrellish as New England district manager. Mr. MacCrellish is retiring.

(Please turn to page 290)

Put this WINNING COMBINATION to work for you!



Hines EXPERT ENGINEERS



Hines MODERN MACHINES



Hines LUMBER SUPPLY

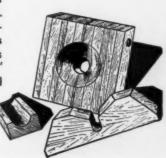
Which one of the three—engineering, production, lumber procurement—is bothering you? Hines is ready and able to solve any one of your problems as far as wood is concerned —or take over the complete job of wood parts production. We are doing a money saving job for many large manufacturers and are ready to go to work for you. If you are interested in cutting costs, phone, write or wire today!

EDWARD HINES LUMBER CO.

ENGINEERED FABRICATION DIVISION 2431 So. Wolcott Ave., Chicago 8, Illinois

WOOD PARTS IN ALL SHAPES AND SIZES

• In many cases wood is better and more economical. It will pay to investigate the savings effected by Hines "forest to you" service on wood parts.





DARNELL CASTERS & WHEELS



Darnell Dependability assures savings, service, safety, speed. A caster or wheel for every use.

DARNELL CORP. LTD.
LONG BEACH 4 CALIFORNIA
60 WALKER ST. NEW YORK 13 N Y
36 N. CLINTON CHICAGO 6 ILL

Philadelphia, Pa.—Quaker Rubber Corporation, John R. Lewis has been named district manager of district No. 2, which includes the greater part of eastern United States.

Dollas, Tex.—Royal Typewriter Co., Inc. Max D. Brown has been appointed district manager here.

Clevelond, O.—The Ferry Cap and Set Screw Company. Dan J. Cantillon has been promoted to assistant manager of industrial sales. He was formerly sales



Dan J. Cantillon

engineer in the department. William H. North, formerly distributor sales representative, has been named assistant to the president, H. D. North.

Pittsburgh, Pa.—Pittsburgh Corning Corporation. Home offices of the company have been transferred from the Pittsburgh Plate Glass Building to 307 Fourth Avenue.

Cincinnati, O.—SKF Industries, Inc. Stuart H. Smith has been named district manager here.

Chicogo, III.—Angelica Jacket Co. Walter A. Kuhs has been named manager of the company's North Central sales division.

Philadelphia, Pa.—Illinois Tool Works. Tools, Incorporated has been appointed exclusive representative of the company here.

Cleveland, O.—The Federal Bearings Co., Inc. J. L. Feuchter has been appointed service engineer for the Ohio territory. Fairlawn, N. J.—Hannifin Corporation. Richard E. Hitchcock has been named field engineer and sales representative for the New York area.

Chicago, III.—Stewart-Warner Corporation. Ernie N. Robinson has been named assistant sales manager of the company's instrument division.

Cincinnati, O.—Black & Decker Mfg. A new factory service station has been opened here at 1094 Gilbert Avenue. The branch is in charge of Robert A. Brown, service engineer.

Chicago Heights, III.—American Manganese Steel Division, American Brake Shoe Company. Harry D. Sweeney has been appointed sales manager of welding products.

New York, N. Y.—Crucible Steel Company of America. Howard M. Givens, Jr. has been appointed general manager, tool and high steel sales.

Mospeth, N. Y.—Merrill Brothers. Howard L. Franks has been appointed director of sales.

New York, N. Y.—Cincinnati Industries, Inc. J. A. Lacey has been named to represent the company here, with offices at 130 West 42nd St.

Ooks, Po.-Synthane Corporation. Herbert W. Widdop has been named sales manager to succeed the late J. B.



Herbert W. Widdop

Rittenhouse. Eldridge E. Smith formerly in charge of the company's Philadelphia sales territory, is now assistant sales manager.

(Please turn to page 296)

SPONGE RUBBER SHEETS STRIPS GASKETS

Can be delivered to your specification in three days at the country's most competitive prices from the country's newest and most modern rubber works.

MECHANICAL RUBBER



WARWICK NEW YORK SIX WAYS...

THAT SANDVIK CAN
FIT YOUR SPECIALIZED
SPRING STEEL
REQUIREMENTS

PHYSICAL PROP-ERTIES — Sandvik quality strip steels are made in special analyses to suit specific applications.

2 HEAT TREATMENT

-Furnished annealed,
unannealed or hardened and tempered.

GAUGE - Precisionrolled in thicknesses from .001".

4 FINISH — Supplied with bright finish or polished bright, yellow or blue.

5 EDGES—Can be supplied with round edges or square edges.

WIDTH — Available in a wide range of standard widths.

SOME SANDVIN SPECIALTY SPRING STEELS

SOME SANDVIN SPECIALTY SPRING STEELS

Band Saw Steels: Metal Band, Wood Band and

Saw Steels: Metal Band, Wood Band and

Steels: Watch Parts Steels

Butcher Band Camera Shutter Steel Blade Steel

Watch Spring Steels Plapper Valve Steel

Watch Spring Steel Blade Steel Reed Spring

Compressor Valve Steel Blade Steel Reed Spring

Feeler Gauge Razor Blade Sinker Steel Steels

Knife Steels Razor Blade Steel Textile Steel

Shock Absorber and Rule Steel Reed Steel

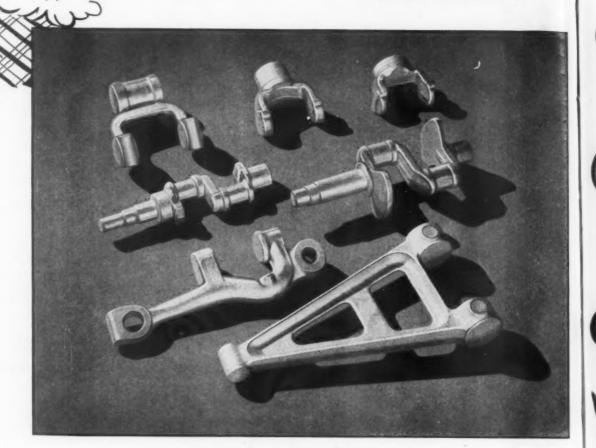
Steels Trowel Steel Vibrator Reed Steel



EIGHTH AVE., NEW YORK 11, N. Y.

180 N. Michigan Ave., Chicago 1, Ill., FRanklin 2-1745
1736 Columbus Rd., Cleveland 13, Ohio, Cherry 230

Reduce machining and finishing operations to a *minimum!*



HERBRAND Precision FORGINGS



HERBRAND DIVISION
THE BINGHAM-HERBRAND CORPORATION
FREMONT, ONIO

meet exacting specifications

Strict adherence to specifications and contour effects a real economy in Herbrand Forgings by reducing machining and finishing operations to an absolute minimum. Exact inspection by skilled craftsmen assures forgings free from defects.

Forgings bearing the Herbrand "Diamond H" trademark will fulfill every requirement of your products. If you need quality drop forgings, in quantities of thousands or millions...Herbrand is an excellent source of supply. Your inquiries are solicited.

FOR SPECIAL NEEDS

Each of the fastenings shown here is designed to do a specific job. Each, because of its unusual shape or size, or perhaps because of the way it's made, is considered a special fastening. And each was selected at random from among the scores of "specials" being turned out by Bethlehem's fastenings plant at Lebanon, Pa.

Lebanon Plant has every facility for fastenings manufacture, not only for such standard items as machine bolts, carriage bolts, nuts and rivets, but also for virtually the entire range of special items required by industry.

Hook heads ... T-heads ... square shanks ... forged-on washers ... no matter how unusual the designs, Lebanon Plant takes them all in stride. And our engineering staff, with its long experience in the fastenings field, is well qualified to work with you in solving difficult fastenings problems.

Next time the need arises for something special in fastenings, drop us a line.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by

Bethlehem Pacific Coast Steel Corporation

Export Distributor: Bethlehem Steel Export Corporation



Bethlehem supplies every type of Fastening

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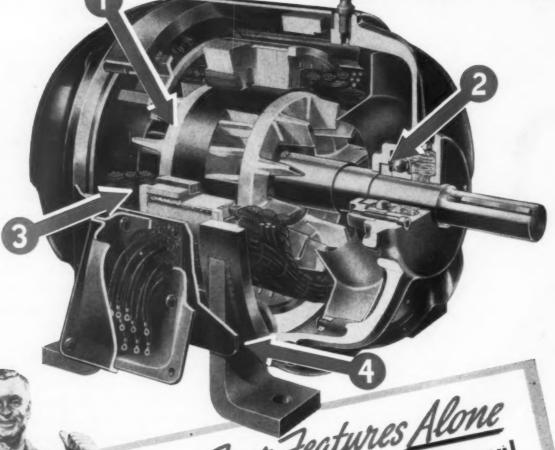
a-

ies

e-If

VG

Precision-Built



These Four Features Alone Make RELIANCE the motor for you!

Dynamic Balancing — Precision Fits Every motor is dynamically balanced by every motor is dynamically balanced by skilled technicians using latest elecskilled recumicians using latest elecof parts to exacting tolerances guaranor parts to exacting tolerances guarantees precision fits throughout. Result: a rees precision ms inroughout. Acsum: a smoother-running, longer-lasting motor!

No Lubrication Worries—Precision Bearing Mounting, with double-shielded ball ing Mounting, with double-snielded bail bearings, assures longer bearing whether under all normal conditions, whether under all normal conditions, whether overgreased, undergreased or not greased at all. "You can't grease 'em wrong!" Reli-X Insulation furnishes a new high in the protection of stator windings, Selected matestator windings. Selected materials, exclusive methods and new continuous-sequence appliance makes this the unfailing cations make this the unfailing insulation!

Steel for Strength - Steel construction, with electrically welded joints, combines maximum strength with minimum weight.

CAYC "All Motors are Pretty Much Alike?"



RELIANCE
Precision-Built
MOTORS

..are made **better** to deliver

DEPENDABLE POWER-LONGER!

Reliance has a way of building motors that must be seen to be fully appreciated. Any time we can take a motor user through the modern plants where Reliance *Precision-Built* Motors are made, we can be reasonably sure of another good Reliance customer. We would be delighted to have you make this visit. But if it isn't practical, call in your nearest Reliance representative and see the convincing facts he can show you on the precision methods that produce these truly superior motors.

Sales Representatives in Principal Cities



Here's a book which digests all the information you should have in selecting the motor that's just right for any job. New torque and current standards recently adopted by the National Electrical Manufacturers Association for A-c. motors are tabulated and explained. And these are further supplemented by more detailed performance data on Reliance Precision-Built Motors. Write today for this important new Motor Data—Bulletin B 2101.

RELIANCE ELECTRIC AND ENGINEERING CO.

"Motor-Drive is More Than Power"

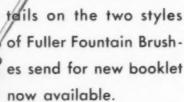
1056 Ivanhoe Road, Cleveland 10, Ohio



Soaks the dirt: Scrubs the surface: Rinses away scum and dirt.

DOES 3 JOBS AT ONCE

The constant flow of fresh water eliminates much tiresome scrubbing - serves time and labor. Merely set the shut off valve to the rate of flow desired. No holding of the valve button necessary. For complete de-





Phone your local Fuller Branch Office or write

INDUSTRIAL DIVISION - 3554 MAIN ST.

HARTFORD 2 CONN.

IN CANADA: FULLER BRUSH COMPANY, LTD., HAMILTON, ONTARIO

Philadelphia, Pa.—The G. A. Gray Company. W. E. Shipley Machinery Co. has been named distributor for Philadelphia and Baltimore territories.

Rockford, III.-Barber-Colman Company. Bruce E. Horst has been appointed sales representative in the Rockford territory, handling machine tools, hobs, cutters and reamers. He succeeds E. J. Benesch.

Camden, N. J.-R. M. Hollingshead Corporation. Oliver A. Hahne has been appointed director of industrial sales.

INDUSTRIAL **DEVELOPMENTS**

St. Regis Paper Company, Panelyte Division, has announced the opening of a sales office at Evansville, Ill., under the direction of J. F. Tynan as district manager.

Air Reduction Company, Inc., New York, N. Y., has appointed Dr. G. V. Slottman as director of research and engineering.

The Bassick Company, Bridgeport, Conn., caster manufacturer, has appointed M. Dickinson as a field service engineer.



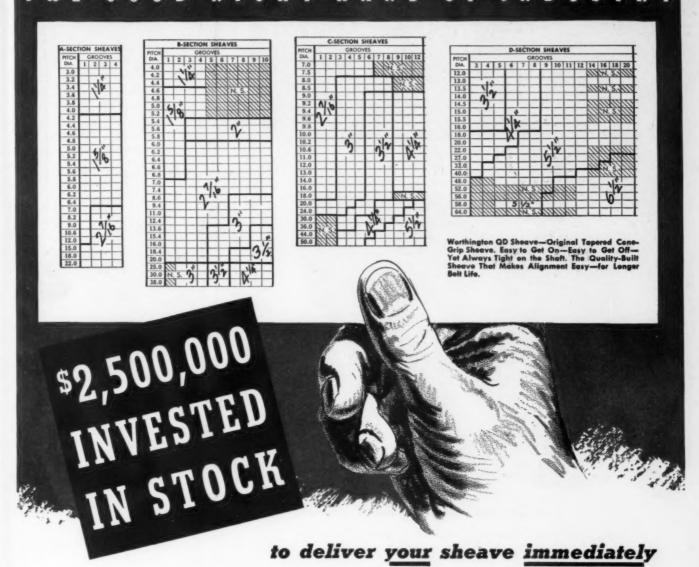
M. Dickinson

Mr. Dickinson formerly headed development of equipment for handling and servicing of aircraft with the Bureau of Aeronautics, United States Navy.

Wico Electric Company, West Springfield, Mass., will purchase the magneto manufacturing operations of Thomas A. Edison, Incorporated, West Orange, N. J. as of May 1st. The automotive division of the Edison company will continue to make automobile batteries and spark

General Electric Company's Apparatus Department plans to increase its Salt Lake City, Utah, warehouse facilities. This will more than double the present capacity for service and repair of apparatus for users in Utah, Idaho, Montana and Ne-

Bakelite Corporation, New York, N. Y., unit of Union Carbide and Carbon Corporation, announces that the laminating division and the adhesives division of the thermosetting department have been consolidated. The division will be known as the Laminating and Adhesives Division.



As long as it takes our distributor's shipment to get there is as long as it takes—in most cases—to get exactly the sheave you need into your hands. Your Worthington distributor has practically any stock size you'd ever call for—if he hasn't, one of the Worthington warehouses will get it to him in 24 hours or less.

Check your sheave requirements. With more sheaves listed as "stock sizes" and more sizes in stock than any other distributor, he may be able to save you the cost of a special sheave.

Top-ranking distributors in every industrial center handle Worthington QD Sheaves and Worthington-Goodyear V-belts. They are backed by Worthington warehouses whose stocks duplicate the factory stock at Buffalo — more sizes stocked than any other sheave on the market. With 853 sizes in "A", "B",

"C" and "D" sections, ½ to 600 hp, you can fill almost any rpm requirement with a *stock* sheave. Also: 332 listed stock sizes of EC Cord V-belts.

So, when you need sheaves, call your local Worthington Multi-V-Drive distributor—his name is under Worthington in A-Z Section of thomas' register.

For Balanced Drive Performance

Specify Worthington Multi-V-Drives, with QD Sheaves and Worthington-Goodyear EC Cord V-belts. (Goodyear EC Cord or Steel Cable V-belts are used exclusively in Worthington Multi-V Drives.)

WORTHINGTON



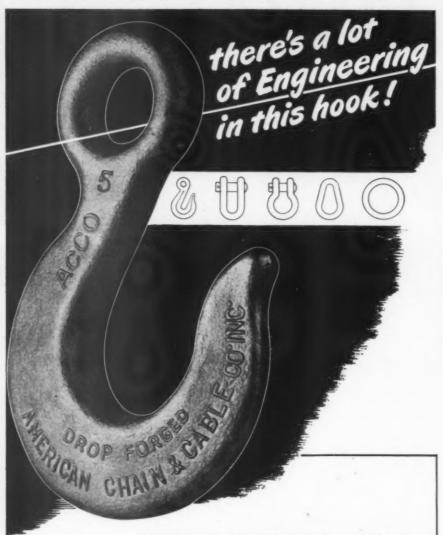
MULTI-V-DRIVE SALES DIVISION
Buffalo, New York—General Offices: Harrison, New Jersey

The Good Right Hand of Industry

POWER TRANSMISSION: sheaves, V-belts, variable speed drives

PUMPS: centrifugal, power, rotary, steam
AIR COMPRESSORS: water-cooled, air-cooled

MVD92



Most people take sling hooks, grab hooks, shackles—chain fittings of one kind or another pretty much for granted . . .

Here at American Chain we take them seriously.

Their design and manufacture call for a high type of engineering, plus years of experience.

The designers, metallurgists and other engineers responsible for the quality of American Chain products are proud of the results of their work. To them every American Chain fitting must be designed to do a job and do it well-made for safety as well as efficiency.

When you think of welded or weldless chain or chain fittings, think of AMERICAN—"the Nation's chain maker."

When you buy chain, buy AMERICAN, the complete chain line.

York, Pa., Chicago, Denver, Detroit, Los Angeles, New York, Philadelphia, Pittsburgh, Portland, San Francisco, Bridgeport, Conn.



In Business for Your Safety

Thomas A. Edison, Incorporated, West Orange, N. J., has purchased a plant in Bremen, Ind., for the manufacture of lead-acid automotive batteries. The new 52,000 square-foot production facility will supplement, and it is hoped eventually double, present production at the company's Kearny, N. J. plant.

American Tile & Rubber Company, Trenton, N. J., has completed a new addition to its plant.

Acro Electric Compony, Cleveland, O. has changed its name to The Acro Switch Company. New directors of the corporation are W. F. Rockwell, W. F. Rockwell, Jr., F. P. Maxwell, Arthur Kroeger and F. G. McCloskey.

General Electric Company, Schenectady, N. Y. has announced that its mammoth



General Electric's new turbine plant

new turbine building near Schenectady is nearing completion. The 20-acre plant will be capable of producing turbine-generators ranging form 20,000 kw to 200,-000 kw. It will be the largest plant of its type in the world.

Minneapolis-Honeywell Regulator Company, Minneapolis, Minn., has entered an agreement for the acquisition of the assets of the H. Belfield Company, manufacturer of control valves. The new acquisition will be known as the Belfield Valve Division of Minneapolis-Honeywell.

GOODYEAR'S MECHANICAL GOODS FIELD ORGANIZATION REVAMPED

H. D. Foster, manager of the Goodyear Company's Mechanical Goods Sales Division, advises that the field organization of that department has been divided into four sales divisions, with a new Eastern sales division, as follows:

Eastern Sales Division, consisting of Boston, New York, Pittsburgh and Cleveland districts—O. A. Schilling in charge.

Central Sales Division, consisting of Chicago, Detroit, Minneapolis and Cincinnati-H. E. Langdon in charge.

Southern Sales Division, consisting of Charlotte, Atlanta, St. Louis and Dallas districts-R. B. Warren in charge.

Western Sales Division-R. G. Abbott will continue in the capacity of district manager in Los Angeles.

> CLASSIFIED SECTION SEE PAGE 334

AMERICAN

CHAIN



Original Divisions of the
Associated Spring Corporation

d

d

of

as

tt

below with confidence that your orders will have a safety factor of seven.

SPRINGS = SMALL STAMPINGS = WIRE FORMS

qualified to assume production of your spring order—if needed. Enjoy this protection and service and select your spring source from the line-up



MATERIAL News



All these important benefits can be achieved for your business by a well-planned application of Clark materials-handling machines and methods.

Clark builds both gas-powered and electric battery-powered fork-lift trucks. Therefore, Clark's counsel on materials-handling problems can be—and is—wholly without bias. Major component parts are manufactured in Clark's own plants to



Clark's own exacting standards of excellence. Clark machines range in capacities from 1000 to 7000 pounds; and the Clark line



of handling attachments meets a wide variety of special handling requirements. It is good judgment to CONSULT CLARK.

5. Elimination

tion of damage to materials

of "time-wasting" and reduc-

Write for the current issue of Material Handling News.



The P. A. As Administrator

(Continued from page 119)

off before the balance sheet is compiled.

A judicious use of those two ideas can go a long way towards maintaining the proper status of Purchasing and also to get management to make a clear statement of Purchasing responsibilities and authority.

Again, four of the Purchasing Agents felt that their administrative time did not suffer from their detail work. But three thought that it did. I mention this for a second time because of its importance and its relationship to this matter of delegation of authority. If you have time to plan and to insure that someone else is carrying out your plans, you can accomplish a lot, including raising your own stature.

Only four of the seven were engaged in long-term personnel and departmental planning. I suspect that if a larger group had been surveyed that the percentage with long-term plans would have been sub-

stantially less.

There are many excellent things being done by N.A.P.A. to assist in training programs and I might mention particularly a booklet published last year by the Development Committee in Intracompany activities entitled, "OUTLINE of an Intracompany training Program for Purchasing Personnel". I can commend this pamphlet to your study.

This is an excellent first tool and suggestion for administrative planning of a training program, and would certainly apply very well to a training program for buyers. However, you will need new supervisors as well as buyers in your department and you will need a successor to yourself. We have almost completed a circle and are back again to my premise that there is not sufficient background or training information for the top echelons. There are marked differences between a top-rate buyer and a good supervisor of buyers. All too often the man who can do his job best is promoted although he is a poor supervisor. One of our principal administrative problems is to select and train our top people, particularly our own successors.

There are many tests which can be taken advantage of in selecting trainees or, for that matter, assist you in working out promotions. The two principal ones are the I. Q. or more accurately "mental alertness test" and the aptitude test which will

(Please turn to page 302)



They both prefer

Bristol's Socket Head Cap Screws

Pencil: "With Bristol's Socket Head Cap Screws, designs can be more compact—small pockets, narrower flanges, etc. because of the internal wrenching."

Wrench: "It's easier for the assembly man, too—particularly in hard-to-get-at places."

Pencil: "Bristol's Socket Head Cap Screws mean flush surfaces for better appearance and safety."

Wrench: "They take the wrench without fumbling or slippage—no danger of skid marks on the work."

Pencil: "The Class 3 fit produces a lock-tight engagement in the hole."

Wrench: "Bristol's Socket Head Cap Screws are knurled for easier starting, and they spin easily into place, fitting perfectly."

Pencil: "The great strength of Bristol's special alloy steel, heat-treated, means they can be tightened beyond the point where screws normally loosen due to shock and vibration."

Wrench: "And Bristol's 5-step inspection means that every one is a *perfect* fastener."

Bristol's Socket Head Screws are made in cap and set styles . . . regular Hex and Multiple-Spline socket . . . National Fine and National Coarse Threads . . . sizes from No. 4 wire to 1 in. diam. . . . various metals and finishes. Carried in stock by top distributors everywhere. Also, special shapes. Send for Socket Screw Catalog, addressing The Bristol Company, Mill Supply Division, I32 Bristol Road, Waterbury 91, Conn.

See us at Booth 866
TRIPLE MILL SUPPLY CONVENTION



Multiple-Spline and Hex Socket Screws . . . Cap and Set



BRISTOL'S

Only BRISTOL gives you the <u>right</u> Socket Screw for every application SOCKET SCREWS



he makers of Avoset Sterilized Cream - the new dairy discovery that keeps sweet for months - "use Arabol adhesives because they hold labels snug even after days in grocers' refrigerators".

Arabol is proud of the fact that their adhesives are used by Avoset Company.

Since 1885 it has been our aim to supply the one best adhesive for each customer's particular requirements. On this basis we are privileged to serve the

leaders in a hundred different industries. See the Arabol representative when he calls. He knows adhesives.



THE ARABOL MANUFACTURING CO.

Executive Offices: 110 East 42nd St., New York 17, N. Y. CHICAGO 50 — 1835 S. 54th Ave. • SAN FRANCISCO 3 — 1950 16th St. LOS ANGELES 11—2262 E. 37th St. • ATLANTA 3—375-377 Whitehall St., S. W. BOSTON 9—12 Commercial Wharf • PHILADELPHIA 47—600 S. Delaware Ave. 5T. LOUIS 4—2500 Texas Ave. • PORTLAND, ORE. — 1233 N.W. 12th Ave. LONDON E. C. 1 — 8 Sans Walk Clerkenwell



Adhesives?... ARABOL!

The P. A. As Administrator (Continued from page 300)

give you a pretty good insight as to whether or not the individual has the proper mental equipment and the proper interests.

Here is one idea that worked well for me in appraising the relative merits of a group all on about the same level. Each man answered a series of questions appraising each of the others. Interestingly enough the way a man answers questions about the others is an exposé of many of his own abilities and type of thinking.

Three of the seven Purchasing Agents surveyed had regular meetings with their department supervisors and four only occasional meetings. This is the type of administrative problem which would vary largely with the size of the department. Some training in "how to harness a conference" would be valuable, however, to any Purchasing Agent.

Of the group of seven, four stated that their top management considered their opinion in Company planning. Two said, "partial" or "more than used to be", and one of them made a significant statement, which probably applies to most of us-"Sometimes I wonder".

I do not have the time to other than mention a few more of the non-functional administration problems a Purchasing Agent must investigate, plan and solve.

1. Sufficient help

2. Working conditions

3. Fair division of work

- 4. Proper compensation for the staff
- 5. Economic problems
- 6. Reception of visitors

7. Ethics

8. Terms of payment

- 9. Search for better products and sources
- 10. Proper interest in employees and sympathy with their problems
- 11. Reports to management and here is a vital one-
- 12. Recommendations to manage-

So much for the responsibilities, functional and other, of a Purchasing Agent. What about the man himself? What are the characteristics of the man who should head up the Purchasing function?

First, however, what are the characteristics of an executive-of any executive? Some of the principal characteristics are-

1. Initiative

(Please turn to page 304)

Question: Who's price-conscious now?

Answer: We are!

HE other day we had a very special sales meeting. (We bend and weld steel rings and flanges for industry, you know.) Nels Berggren, Herb Jones and Jack Gibbons agreed that every plant they call on is buying price. That's the inescapable truth, they told us, and the devil take the hindmost.

So, gentlemen, having a disaffection for the old boy and a wholesome desire to continue to eat regularly, we are revising our prices drastically downward; giving our salesmen and the purchasing agents who buy our products a real break. If you can use bent and welded steel rings in your business, send for a capacity chart and other information today.

Will you send the coupon now?

KING FIFTH WHEEL COMPANY

2929 N. Second St. Philadelphia 33, Pa.

KING FIFTH WHEEL CO.

2929 N. Second St. Philadelphia 33, Pa.

Please send me, without obligation, information about your product and service.

Company name
My name

Address

City.....Zone State.....



You can offset sky high "man-handling" costs when it comes to lifting, stacking and moving materials . . . by putting "GO-GETTERS" to work. These battery operated Liftrucks are single-hand-controlled, and require no more effort to lift loads few inches or many feet.

"GO-GETTERS" walk away with work that would be physically and economically impossible with manpower alone. Labor savings and conservation of storage space through high stacking quickly repay a moderate first cost . . . and then continue to show substantial production profits.

Made in six types to meet all requirements. Let us help you solve your materials handling problems . . . save REVOLVATOR equipment exactly suited to your needs.



8752 Tonnele Ave., North Bergen, N. J.

TEAR	TEAR OFF COUPON			
Kindly send full Power Liftrucks	information on Red Giant Hand	GO-GETTER Liftrucks		
Name				
Position				
Company				
Address	*********			

The P. A. as Administrator

(Continued from page 302)

Judgment

3. Personality

4. Ability to use men

5. Vision or planning ability

I make no pretense that this list is complete or in order of importance.

Now, the Purchasing Agent is a different executive than Sales, Accounting, Engineering executives, in fact, than any other executive. For that reason some of those necessary characteristics need to be more em-

phasized in his case.

First, he should know how to handle people on a plane well above that required of many of the execu-People are his tools, not only his own employees but other of his company's people, and these latter are frequently department heads and up, and, of course, the other group, which he must know how to handle properly, are his vendors' representatives varying all the way from city salesmen to factory managers and presidents.

A second thing that marks the Purchasing Executive is that he should be a negotiator. You might even call the Purchasing Agent a salesman as most good executives are, no matter what their work. He has the administrative responsibility of persuading other departments to use materials and equipment which they do not want to use, and vice versa, when they already have preconceived ideas and prejudices. He must do this effectively and at the same time retain good interdepartmental relations. If asked to choose the major characteristic of the Purchasing function and the people in it, I would say "Negotiation'

He must have an inquiring mind, not only in his own field, but in many others, such as business conditions in industries directly and indirectly related to his own; he must have a broad knowledge of materials and desire to learn more.

And it is people with these characteristics that he must be seeking, training, and developing to strengthen his department and provide proper replacement of existing personnel.

To sum up, I conclude that a Purchasing Agent is an administrator; that many of his problems and therefore his characteristics are very different from those of other executives, and last, that not much is being done to provide the proper kind of education for him. All that I have done is to raise the problem and outline its scope. I would be particularly gratified if this will evoke some further discussion.

You don't buy towels



from Pictures

Frankly, IAMA Paper Towels aren't much to look at ... no special frills or fancy finishes . . . but for 30 years they have been doing a top-notch job of drying hands and faces thoroughly and gently. IAMA Paper Towels are made by Central Paper Company . . . a mill with an outstanding reputation for quality in creating and making specialized papers of all kinds for industry.

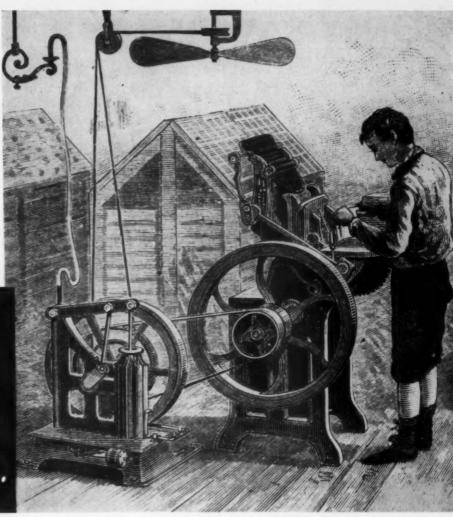
IAMA PAPER TOWELS

SOFT...WET STRENGTH LINT FREE...ABSORBENT









More power to the wheels of progress! Only ½ manpower—this little engine was made to propel the pistons and spin the shafts of small industry. "Revolutionary," they said, for driving sewing machines and printing presses and dentists' lathes and such.

That was in 1883 when Blake & Johnson had already been serving the needs of industry—small and great—for 34 years. From then to date, we have supplied more than 35,000 different types of fastening devices. Our most

recent development was the Twin-Fast wood screw introduced 6 years ago. Today this twin thread screw is contributing new holding power to assemblies in your industry—in practically every industry.

But Twin-Fast is only a symbol of progressive thinking at century-old Blake & Johnson. It signals the beginning of Blake & Johnson's next 100 years of achievement and service.

Write for catalog of complete line of Blake & Johnson fastenings



A Century of MANUFACTURING OF FASTENING DEVICES FOR INDUSTRY

MONEY-SAVERS

Fig. 732 Pat'd Pats. Pend. Drawer is extra.



READY-MADE



WORK BENCHES OF STEEL

These serviceable, ready-made "HALLOWELL" Work Benches of Steel are made in standard heights, widths and lengths with long-wearing steel tops . . . high-grade, laminated wood tops . . . or, steel tops covered with "Tempered Presdwood". Because the "HALLOWELL" is made of sturdy steel, it is rigid as a rock and does not require costly bolting to the floor. Being standardized, the single "HALLOWELL" Benches around your shop may be bolted together to form one long bench—that's a money-saving feature not practicable with "nailed-together" wooden benches.

Write for the name and address of your nearest "HALLOWELL" Industrial Distributor.

OVER 46 YEARS IN BUSINESS

STANDARD PRESSED STEEL CO.

JENKINTOWN, PENNSYLVANIA, BOX 590

CHICAGO • DETROIT • SAN FRANCISCO • ST. LOUIS

CORROSION-PROOFED Solderless TERMINALS

Protect electrical connections against CORROSION!

Hydrogen Sulfide, Sulphur Dioxide, Ammonia, Butane, Hydrochloric and Sulphuric Acid fumes have no measurable effect on AMP Corrosion-Proofed Terminals. Where precision of operation must be maintained under corrosive conditions the AMP Corrosion Proofing Method has proven itself.

AMP corrosion proofing prevents indefinitely any measurable increase of resistance of the terminal due to corrosion.

AMP corrosion proofing actually increases the electrical conductivity of the connection.

AMP corrosion proofing is self-healing, for it re-forms over any break or abrasion.

AMP corrosion proofing has creeping properties which cover any exposed portion of the wire making a continuous metallic joint without interface, thereby assuring a continuous corrosion resistance for the entire connection.

AMP corrosion proofing can be applied to any AMP copper terminal. Thus 'the PRE-INSULATED or uninsulated terminal installation can be AMP corrosion proofed.



Precision of operation requires uniformity of terminations. AMP meets this requirement with the Certi-Crimp hand tool. A special ratched device does not permit the tool to open once the crimping operation is started until that operation is somplete— no chance for error—the human element of chance and fatigue is eliminated.

All items covered by Pats. or Pats. Pending



AIRCRAFT-MARINE PRODUCTS Inc.

1319 NORTH FOURTH STREET, HARRISBURG, PENNA. Sole Camadian Representative: F. Manley & Sons, Ltd., Toronto

Unfair Trade Practices

(Continued from page 148) mobile or undertook to collect for his damages and that the warranty of time had elapsed by some two weeks is not tenable."

Purchaser Is Liable

As a climax, to illustrate how simple it is for a purchaser to suffer heavy financial losses we shall review the new and leading case of Williams v. Phillips, 190 Pac. (2d) 189. The testimony showed that one Phillips leased equipment from its owner for 12 months. The lease contract provided that if Phillips missed one payment the owner could repossess the equipment. The contract stated further that Phillips would pay \$6,000 in advance and pay \$1,050 a month for twelve months. Phillips paid \$6,000 in advance, and paid \$1,050 a month for two months and then missed the 3rd month's payment.

The owner of the equipment filed suit, and the higher court held that he could take possession of the equipment at once and Phillips must pay the full rental for the balance 10 months or \$10,500. Hence Phillips expended \$18,600 for use of equipment for 2 months although he could have purchased it outright

for \$15,000.

Economy Through

(Continued from page 121)

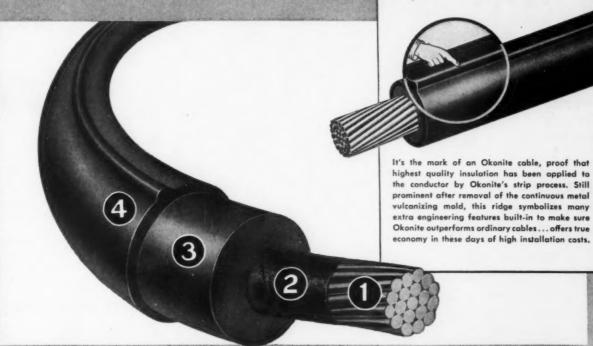
now serving us so well are becoming obsolete because of the increases in fuel and labor costs. Since we could freeze only ratings, steam conditions, extraction nozzle pressures and efficiency, the value of these standards started to deteriorate the day they were adopted. They were static, designed for a given set of conditions while the world about them was in a state of flux. My company, like the other turbine manufacturers, has spent large sums to engineer and tool new turbine designs to fit the Preferred Standards. Any radical changes in these standards will necessitate additional expenditures, and changing economic conditions may force such changes. Thus, even the best of standards can have only temporary value.

We cannot ignore the effect of special engineering on the cost of manufacture. Standardization makes possible the adaptation of special single-purpose machine tools which reduce the hours of labor required

(Please turn to page 308)



Look for this ridge and you find a reason . . .



HERE, FOR EXAMPLE, IS A CABLE THAT'S PROTECTED 4 WAYS

t is a cable with a long and extensive service record. It is an Okolite-Okoprene cable with extra protection from conductor coating to sheath. It passes, in addition to a-c tests, high voltage d-c tests more severe than those required by any other manufacturer.

Into four different parts of this cable, extra service life is built . . . at the conductor (1) by a coating of Okoloy, a special corrosion-resistant lead alloy that outlasts tinning 2 to 1 . . . about the conductor (2) where an application of Semicon tape - on all Okolite-Okoprene cables operating at over 2000 volts - eliminates internal corona cutting and increases dielectric strength.

True cable value is added by the insulation (3) which is moisture-resisting, high-voltage Okolite made with Up-River Fine Para Rubber, the best grade of natural rubber. Okolite, an oil base insulation, has been proved in over 20 years of service, and is approved by Underwriters' Laboratories, Inc. as Type RWSN. The outer sheath (4) is Okoprene, the pioneer neoprene cable covering developed in the Okonite laboratories. Its life-extending durability and stable characteristics have been demonstrated on millions of feet of cable installed during the last 14 years.

Okolite-Okoprene cables possess many advantages from the standpoints of installation, electrical operation and design. These, along with dimensions and other data, are combined in an illustrated Bulletin PG 1037. For a copy, address The Okonite Company, Passaic, New Jersey.

THE BEST CABLE IS YOUR BEST POLICY

7382





ITE SINCE 1878 insulated wires and cables



RAILS and TRACK ACCESSORIES



WRITE WIRE FOSTER

1 TON OR 1000

EVERY SINGLE ITEM AS SHIPPED BY POSTER IS WARRANTED TO BE REPRESENTED . . . AND IS SUBJECT TO PURCHASERS INSPECTION AND APPROVAL AT DESTINATION.

PROMPT SHIPMENTS FROM FIVE WAREHOUSES

PITTSBURGH; CHICAGO; AMSTERDAM, N. Y; DELAWARE, N. J; HOUSTON, TEXAS

PURCHASERS PLEASE NOTE:

46 years of customer satisfaction are solidly behind Foster Piling, Rails, Track Accessories, Pipe and Wire Rope . . . always sold under the Foster guarantee. Foster's dependable service continues during periods of scarcity. Five strategically located sales offices are ready to serve you.



Economy Through Standardization

(Continued from page 306)

in the manufacture of machinery and allow repetitive use of engineering designs, patterns, fixtures, jigs and other tools used in bringing to you the things you need.

I have said that standardization has been partially responsible for keeping prices of electrical equipment low, but there is another important factor in our case which deserves some consideration. The increases in cost of materials and labor have been largely offset by the fullest absorption of overhead and burdens through maximum use of all our facilities. Breakeven points are higher than ever before in history and time alone will tell what effects a reduction of demand will have on prices, for if all factors of direct cost remain static and the volume does not fully absorb the indirect or fixed expenses, then prices must advance.

If there is any general feeling that more economizing can be done through still more standardization, I would like to urge caution. More standardization, if it is a product of natural evolution and if it is based on a solid foundation of mutual benefits, will make for more economizing. More standardization through the restraint of rugged individualism can be beneficial to us both. Forced standardization with the sole objective of reducing first cost is unsound and will not produce the results desired.

It is my firm belief that dynamic or progressive standards are beneficial to both buyer and seller. I also believe they are beneficial to the public at large and will continue to advance our nation's standard of living if we proceed in the future as we have in the past—with caution and with wisdom.

This Business of Purchasing

(Continued from page 116) between a routine job of buying and this business of purchasing as we like to think of it—as an executive management function.

There is nothing incongruous or contradictory about the concept of purchasing as a service function and as a management function. If we are realistic, we must accept the former; if we're constructive and management-minded, we'll do the job the latter way.

As utility men, you know that there is a market for service. You have daily evidence of it in the serv-

(Please turn to page 310)

For STRENGTH specify

Tri-Lok

RECTANGULAR

OPEN STEEL FLOORING



The locked-in strength of Tri-Lok enables it to stand up under heavy loads—even on long spans. No rivets, bolts, or welds are used in the construction of Tri-Lok; this feature eliminates the possibility of loose joints.

Tri-Lok is also available in Diagonal, or Super-Safety U-type Flooring, and in Stair Treads of all types. Write for Bulletin KP 1140.

DRAVO CORPORATION

National Distributor for the Tri-Lok Company

Dravo Bldg., Pittsburgh 22, Pa.

Sales Representatives in Principal Cities



SHELDON



No. 3000 Size "0" Horizontal Milling Machine

Rigidly built for continuous, heavy-duty precision service. Spindle supdouble row Timken Taper Roller Bearings. Fully enclosed variable drive, choice of two spindle speed ranges, 100 to 1000 or 125 to 1350 r. p. m. With back geared attachment speeds from 25 to 1350 r.p.m. Taper gibs throughout.

Write for catalog sheet.

SHELDON MACHINE CO., INC.

4220 N. Knox Ave.

Chicago 41, III.

Spec

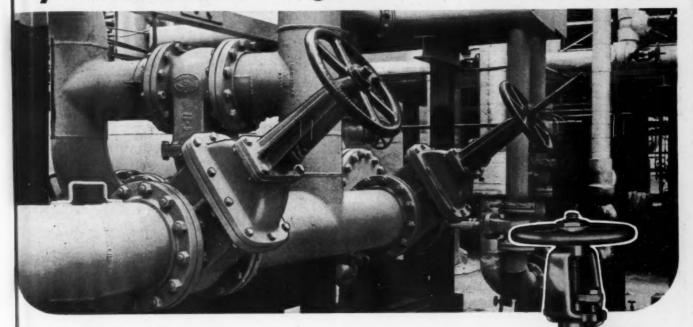
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APRI

ALOY STAINLESS STEEL LVES



by the hundreds in Celanese* Chemcel Plant



THE CHEMCEL PLANT of the Celanese Corporation of America at Bishop, Texas, is notable for its extensive use of stainless steels. Towers, condensers, pumps, valves and other equipment are constructed largely or entirely of these durable metals, only after the most careful analyses.

And in this largest of plants for the commercial production of organic chemicals by the direct oxidation of propane and butane gases, there are hundreds of Aloyco Stainless Steel Gate Valves, Globe Valves and Check Valves. The photograph above shows a typical installation of Aloyco Gate Valves in the Chemcel Plant. The management says of it:

"The solution handled by this installation is 14% formaldehyde in water at approximately 200 degrees Fahrenheit, and in a recent inspection the internal surfaces proved to be in excellent condition after nearly one year's service."

Aloyco Gate Valve, No. 111, 150 lb. flanged, F and D. Sizes ½"-12" inclusive. Available in 18-85, 18-85Me, Aloyco 20 and ether corresion-resisting alloys.

ALOYCO

STAINLESS STEEL VALVES AND FITTINGS

GATE, GLOBE, T, CHECK, TANK, SAMPLING AND V-PORT VALVE

ALLOY STEEL PRODUCTS COMPANY, INC.

1403 WEST ELIZABETH AVE.

LINDEN, N.

SALES OFFICES: ATLANTA; CHICAGO; HOUSTON,

Specify Aloyco Stainless Steel Valves, to increase your own process pipe-line efficiency and reduce maintenance costs.

*Reg. U. S. Pat. Off.



For a true fit every time, every way, you can rely on Brighton Socket Screws. Threads are precision-formed . . . meet all standards of accuracy and uniformity. Sockets are truly uniform . . . fit handin-glove with your wrench. B-Right-On Socket Set Screws set tight and stay tight.

First-quality materials . . . the most modern production methods . . . careful, critical inspection make all Brighton Socket Screw Products, tip-top in quality. Remember, you can do better with B-Right-On.

Brighton Screw & Mfg. Co. 1845 Reading Rd. Cincinnati 2, Ohio

BRIGHTON Screw & Mfg. Co.

This Business of Purchasing

(Continued from page 308)

ice that your companies provide, that your companies exist to provide. As purchasing men, you know that you seek service as well as materials from your suppliers, and that the quality of service is frequently the determining factor in selecting a supplier. It is an even more important consideration in this business of purchasing, which has nothing but service to offer.

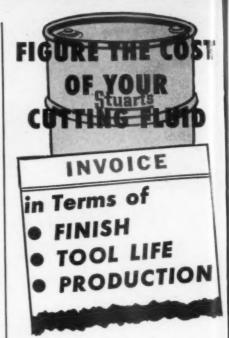
We are all keenly interested in doing a better job. It is fair to say that this is why utility purchasing men from every section of the country have gathered at this conference, which has as its theme the common interests of the job that every one of you is trying to do. May I suggest that however fine a program has been arranged for these meetings, whatever enlightening and authoritative information is brought to the conference by the specialists from many fields who have gathered here, the only significance and value of these meetings will develop when you are back in your own offices, working at this business of purchasing.

When you face that bill of materials that need to be purchased, are you going to be satisfied with doing a routine job of filling the requisitions? Will you be content to get it done the easiest way (if there is any easy way on purchasing)? Or will you remember that every requisition for pipe, or wire, or fuel, or transformers, is an opportunity for service, and that service is your stock in trade? Whatever you decide, remember that your action is writing the definition of this business of purchasing, for better or worse.

Are you going to tell yourself that it will not make much difference one way or another, how or when or where you buy? So what's the use of beating out your brains and raising your blood pressure, as long as you get the stuff somehow?

Well, it's your job. But is it? In a broader sense, and just as truly, it's the job of every man in purchasing—it's this whole function or business of purchasing—that hangs in the balance of your decision. Before you commit yourself to that decision, think over what Robert Browning said about service: "That little more—and oh, how much it means!

That little less—and oh, what worlds away!"



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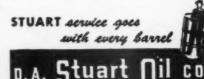
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IT is wise economy to buy cutting fluids on a basis of performance rather than on a price basis. This is borne out by the case of a large screw products company in Chicago machining 11/16" round stainless steel types 303 and 440. Operations include forming, drilling and reaming on a New Britain-Gridley automatic screw machine. A number of different cutting oils had been used on this job until one was found that seemed to give relatively satisfactory performance. However, this product was replaced after the first trial with Stuart's Thred-Kut. Not only was there a marked improvement in finish, but tool life was increased 3 to 4 hours and daily production was increased.

The above case study is a typical example of how the best cutting fluid for the job will pay its original cost over and over again. D. A. Stuart Oil Company representatives preach the gospel of "Wise Economy." They can help you cut costs with cutting fluids best suited to your requirements. Ask for booklet, Cutting Fluids for Better Machining.



2727-31 S. TROY ST., CHICAGO 23, ILL.

ROLLICATED ALLOY

An example of cost-reducing, quality-improving equipment for heat treating is illustrated by this Drop-Bottom Pit-Type Furnace Basket . . . fabricated and welded by Rolock.

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IASING APRIL, 1949

When a conventional basket and load are mass quenched, the violent thermal shock is highly destructive to basket life. But this quick opening feature instantly dumps the load without immersion of basket and



cuts the time interval between heat and quench to a minimum . . . assuring uniform quality, low hour-cost of basket.

Rolock engineers can solve your specific problems . . . give you competitive advantages for today's and tomorrow's production.

We feel certain that a copy of Rolock's catalog will be of interest to you. Why not write for it today.

Offices in: PHILADELPHIA • CLEVELAND • DETROIT • INDIANAPOLIS • CHICAGO • ST. LOUIS • LOS ANGELES

ROLOCK INC. . 1270 KINGS HIGHWAY, FAIRFIELD, CONN.

Easier Operation, Lower Cost

Want Additional Product Information? See Page 19.

With a Lift of Her Finger... She Raises Pressure by the Ton!

U. S. Royalite **Grinding Wheel Sample** being tested with this specially-designed machine in a U. S. Rubber Company laboratory.

Here, on a specially-designed machine, "U. S." engineers have taken a grinding wheel sample and just tested it to destruction!

But before this grinding wheel reached the breaking point, it had proved its ability not

only to meet, but to surpass, the strict specifications demanded by the customer's job.

Thorough testing in "U. S." research laboratories is one of the reasons why U. S. Royalite Grinding Wheels are so much in demand, testing that covers not only abrasives and bonds of every kind, but also the selected fields everyed by all the products of related fields covered by all the products of United States Rubber Company. Then there's the test of time. Experience

built up in the course of 84 years enables "U. S." to solve current wheel problems of every type—and to anticipate future prob-lems brought on by higher production quotas and new manufacturing techniques.

As a result, whether you're snagging castings, grinding ball races or working with billets, bits, slabs or sauce pans, you'll find a U. S. Royalite Wheel carefully engineered to your job. In addition, "U. S." field engineers, by thorough testing right in your own plant, can give you accurate grinding wheel costs in advance.

For complete information, write to Mechanical Goods Division, United States Rubber Company, 1230 Avenue of the Americas, New York 20, N. Y.



When this midwestern iron foundry adopted high speed snagging 17 years ago, it picked U. S. Royalite Wheels. It has been using them ever since on the basis of their superior performance.

U. S. ROYALITE GRINDING WHEELS

ENGINEERED TO YOUR JOB

RVING THROUGH SCIE



"Standard"

STAINLESS for product improvement

Build in the quality your product needs to meet the challenge of competitive markets with "Standard" Welded Stainless Tubing. In many applications the ultimate cost of Stainless is less than tubing made from other materials. And you get smarter, more attractive styling—rugged durability—corrosion and heat resistance—in a tubing that can take it. "Standard" Stainless is easy to fabricate, resulting in more economical manufacturing techniques for you. Let Standard's 25 years of tubing experience assist you in developing methods for product improvement requiring the use of high quality Welded Stainless Steel Tubing.

SIZE AND THICKNESS CHART for STAINLESS STEEL TUBING

TUBE DIAMETER	MAXIMUM WALL		MINIMUM WALL	
O.D. SIZE	DECIMAL	B. W. GAUGE	DECIMAL	B. W. GAUGE
3/8"	.035*	20	.025*	23
1/2"	.035"	20	.025*	23
5/8"	.049"	18	.028*	22
3/4"	.049*	18	.028"	22
7/8"	.065*	16	.028"	22
1"	.083*	14	.028"	22
1-1/8"	.083*	14	.028"	22
1-1/4"	.083*	14	.028"	22
1.3/8"	.083*	14	.028"	22
1-1/2"	.095"	13	.035"	20
1-5/8"	.095*	13	.035"	20
1-3/4"	.095"	13	.035"	20 .
1.7/8"	.095*	13	.035"	20
2"	.095*	13	.035"	20
2.1/4"	.095*	13	.035"	20
2.1/2"	.095*	13	.035*	20
2.3/4"	.095*	13	.035*	20
3"	.095*	13	.035"	20

*Intermediate sizes within the range indicated can also be manufactured. Please consult us for sizes not listed.



Cut costs...avoid scrap ends

Specify the exact length you need when ordering

Asarcon 773 Bronze

Cut your maintenance costs, get your order custom-cut to exact size by your Ampco distributor

You have always had to buy bronze rod and tube in 13" lengths — no matter how little you actually needed. The oversize was waste, an unnecessary addition to your costs.

You no longer have to pay this premium. Your Ampco distributor now stocks Asarcon 773 bronze rod and tube in mill lengths and custom-cuts

your order to exact lengths. Imagine how much this saves you in one year.

OTHER ADVANTAGES

Besides buying-economy, Asarcon 773 gives you the special advantages of continuous-cast stock:

- 1. No scrap due to metal flaws
- 2. Longer tool life
- 3. Less machining time

Asarcon 773 is produced for Ampco Metal, Inc., by the American Smelting and Refining Company of Barber, New Jersey, by a patented, exclusive process.

Take advantage of these important savings to cut your maintenance costs. Place your bronze rod and tube business with the Ampco distributor in your area. Write for his name and address — and for full details on Asarcon 773...

Ampco Metal, Inc.

DEPT. P-4, MILWAUKEE 4, WIS.
West of the Rockies it's the AMPCO BURBANK PLANT, Burbank. California

Specialists in engineering, production, finishing of copper-base alloy parts and products.



A-39C

Asarcon 773 is available through Kingwell Brothers Ltd., San Francisco, California, to users located in California, Oregon, Washington, Nevada, Idaho, Utah, Arizona, New Mexico, Colorado, Wyoming, and Montana.

Ampco's Continuous-Cast Asarcon 773
Solid bronze rod from ½" O.D. up, tubular rod from 1"
O.D. up. Mill lengths: 26½", 52½", 104½". A superior all-purpose bearing metal meeting SAE 660 specs. Nom. Analysis: 83% capper, 7% tin, 7% lead, 3% zinc.

Your Ampco distributor stocks Asarcon 773 bronze rod and tubes in mill lengths. He custom-cuts your order to any size!

Shipping Time Instructions

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(Continued from page 139)

used advantageously in combination with other motives or purposes to bring about better understanding. For example: "Ship July 8, 1949 for our use." "Ship July 8, 1949 for resale." "Ship July 8, 1949 for our physical inventory control."

As pointed out above, the time demand term with a negative modification in effect voids the contract unless the terms are met. But even with these terms, we can still begin the clause with the functional verb "ship". For instance, "Ship not later than July 8, 1949."

The term "ship" can also be flexibly used to release the vendor from specific dates of shipment. For instance, "Ship November 1, or sooner"; or "Ship by November 1"; or "Ship by November 30, but not before November 1."

The sole and exclusive use of the term "ship" obviously relieves the vendor of the burden of transportation time calculations and places it wholly upon the purchaser. But is not the purchaser of one type of merchandise the vendor of another? Would he not be willing to burden himself with the transportation time calculations of the goods he buys, if his buyers would in turn unburden him of the transportation time calculations of the goods he sells?

Many concerns, it was noted, use the term "delivery", which has come to mean through commercial usage, "the transportation of a purchase to the purchaser." It is a vague and ill-defined connotation. In the field of law, however, it carries a specific definition, "the act of putting property into the legal possession of another." Here is double meaning, a chance for double trouble. double-entendre may still be admissible in the bar-room story, but surely in this age it should not appear on the purchase order contract, particularly when it involves the movement of goods with all its repercussions in accounting, finance, and customer relations.

Consider for a moment, the other terms on a purchase order contract. "F.O.B. Detroit" has specific meaning; "ship by express", "send parcel post", have specific meanings. And the payment terms "cash with order", "cash before delivery", "C.O. D.", and "2%—10 days—net 30 days", all have specific meaning.

Only in the time demands do you find variety, ambiguity, and confusion over terms with the resulting dislocation in the movement of

(Please turn to page 316)

Your Source of Supply for Better Taps

There are many sources of supply for standard taps . . . also varied degrees of quality in manufacture. The only way to determine your best source is by (1) reputation of the manufacturer in the trade, (2) your onthe-job performance of the taps you buy on the basis of tapping cost per hole.

However, if you run into troubles, it is far better practice to consult *your* manufacturer, stating the trouble in detail and requesting a solution. Hanson-Whitney engineers welcome such inquiries . . . in fact, we request them. We stand firmly back of Hanson "Finished Taps" of both Standard and Special make.

And as for "Specials," you'll find no better source of supply anywhere.

Measurement of Tapping Costs

Economy of tapping is measured only by the cost per tapped hole . . . not by the cost of the taps themselves.

In high speed tapping the Hanson-Whitney "Finished Taps" clearly demonstrate their superior value both for accuracy and economy. The accuracy with which they are made results in long tap life, minimum breakage, and perfect threads. It naturally follows that they are the most economical to use.

Explain Your Job in Detail . . . We'll Serve You Better

When ordering, specify grade of material to be tapped, depth of tapped hole, class of fit and whether through hole or bottoming. With full information we can give you correct hook or rake on cutting faces, number and style of flutes and proper chamfer. Thus you obtain the right tap for the specific operation . . . lower costs, quality threads.



A Hanson-Whitney "Tandem Tap" embraces two distinct sections ... the lower one for roughing, the upper for finishing ... both sections being uniform in lead, providing added chip space, better lubrication to the roughing section.

This type is recommended only where conditions permit both sections to pass through the work . . . and preferably where the tap can be removed, without reversing.

If you have difficult tapping problems, steep leads, long threads ... and if superior finish is essential, the results cannot be excelled. Moreover, this "Tandem Tap" will produce in *one* operation what generally requires *several* taps ... a decided cost saving in production tapping. Available in any form of thread or limits.

HANSON-WHITNEY MACHINE CO. HARTFORD 2, CONN.
Division of Whitney-Hanson Industries, Inc.



"SUPPLYING industry with H-VW-M equipment for electrolytic applications brings up many straightforward questions. This one's duck soup to

answer.

To start with, H-VW-M automatic conveyors are versatile. They can be used for cleaning, pickling, plating, ano-dizing, bright dipping, or a combination of many different treatments and coatings. There's a size and type for each individual application. In many instances the full automatic type serves best-



improves working conditions, maintains a high quality product and develops savings that more than justify the investment even where the work is highly diversified.

"Wherever H-VW-M conveyors—full or semi-automatic, combinations of both are

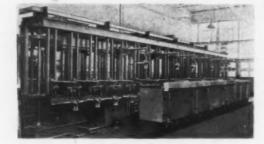
installed they pay off many ways: Reduce rejects, lessen cost per unit of processed work, noticeably improve uniformity of finished prod-uct. Hundreds of H-VW-M conveyors are in successful operation today in many different industries.

For complete information, ask your H-VW-M representative for copies of bulletins FA-103 and SA-101, or write to headquarters.

"What's so good about H-VW-M AUTOMATIC CONVEYORS?"

M. J. MOLL, Chief Equip. Sales Engineer, H-VW-M COMPANY

Hanson-Van Winkle-Munning has supplied the plating industry for over 70 years. Our sales-engineers are thoroughly familiar with every step in the process of electroplating and polishing. It is this overall knowledge that has made H-VW-M "Headquarters" for electroplating and polishing equipment, supplies and techni-



HANSON-VAN WINKLE-MUNNING COMPANY MATAWAN, NEW JERSEY

Manufacturers of a complete line of electroplating and polishing equipment of the second seco



Plants: Matawan, New Jersey · Anderson, Indiana · Sales Offices: Anderson · Chicago · Cleveland · Dayton · Detroit Grand Rapids · Matawan · Milwaukee · New Haven · New York · Philadelphia Pittsburgh · Rochester · Springfield (Mass.) · Stratford (Conn.) · Utica

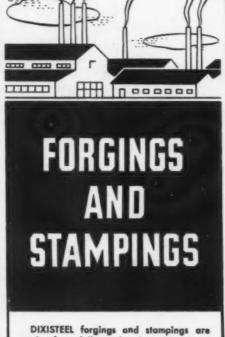




This heavy but flexible gauntlet (#2122) is typical of the outstanding Olympic line. Best chrome split leather . . full-leather thumb, strapped and welted . . . practically full-leather back . . . base of 2 middle fingers reinforced with leather welts . . . seamless index finger . . . large puller on cuff . . . Canton flannel lined. Remember—Olympic has a glove to fit every job!

Send for Illustrated Catalog of Safety Work Gloves, Finger Protectors and Safety Apparel.

OLYMPIC GLOVE COMPANY Inc.



DIXISTEEL forgings and stampings are made of carefully analyzed steel produced in our own open hearth furnaces. They are of highest quality and strength.

Send us your prints or specifications for forged or stamped parts, and we will be pleased to submit our estimate for pro-

ATLANTIC STEEL COMPANY

Shipping Time Instructions

(Continued from page 314)

Such terms as "deliver" delivery", "shipment", "here "make shipment", "date wanted and "shipment date wanted" should be discarded.

It is significant, the study showed. that the giant corporations in this country used almost exclusively the

term "ship"

The broad approval of the exclusive use of the four-letter functional verb "ship", used alone or together with the ship-motive idea, will clear the time demand terms of all its present defects. Misunderstanding between purchaser and vendor will be mitigated. Good will among buyer and seller will be fostered. Elements of costs for misunderstandings will diminish. There will be no confusion over price adjustments in their relationships to time demands. Carloads of goods will not be volleyed back to the vendor from the purchaser. The confusion over terms will be cleared. The movement of goods will be orderly.

1 1 1 Chemical and Wet Processing Industries

(Continued from page 141)

tinuously during the life of the boiler equipment.

The storage of coal is also an important consideration in the purchasing program. Due to the desire to have a sufficient quantity on hand, not only to insure continuous operation but also to be able to ride out any emergencies such as a strike period or the possibility of poor transportation conditions in winter. there is frequently a need for the accumulation and storage of coal at the plant location. However, to avoid deterioration and the dangers of combustion, there should be careful supervision of the storage methods as to size and height of pile and quantity of coal in a single pile. There should also be a constant check on its usage, taking first the coal that was earliest delivered and putting the fresh coal into the storage pile.

Any careful operation of boilers is accompanied by records on the quality of fuel used, quantity consumed, and heating values derived. The purchasing department should get a copy of these reports as a check on the fuel being purchased and a guide to further purchases.

Chemical and wet processing plants, having extensive equipment

(Please turn to page 318)



He's a thief of the "sneak" variety

- pilfering, robbing, stealing valuable production from machines in
thousands of plants. The cost of his thievery is staggering - but he can be stopped!

You may not even suspect that he's at work in your plant. You may have to *look* close to find him. But there's a big reward when you do.

For example . . . here are some places to look.

Are you still using the old-fashioned "hand and paddle" method of filling grease guns—wasting time, wasting grease, risking grime and dirt? There's a thief!

You can save $3\frac{3}{4}$ man hours for every 100 lbs. of grease.

Are you lubricating machines the hand and muscle way? Watch for losses here!

You can save up to 23.9 man hours in applying each 100 lbs. of grease.

What about "down-time"—production interruptions for lubrication, or for part replacements due to faulty lubrication? More thievery!

You can lubricate hundreds of bearings from one cen-

tral point, with the right amount of lubricant, while machines continue to produce.

Now are you suspicious that a production thief is working in your plant?

His disguise is "old-time, hit-or-miss, costly lubrication methods" that add to the costs of production.

There's one proven way to stop this loss.

An Alemite representative can tell you in 10 minutes how Alemite Methods will simplify and better organize your lubrication procedures. He can show you how mechanized lubrication from barrel-to-bearing will increase your production and profits.

Telephone your Alemite Distributor now. Or write to Alemite, 1894 Diversey Parkway, Chicago 14, Illinois.

ALEMITE

MODERN LUBRICATION METHODS
THAT CUT PRODUCTION COSTS



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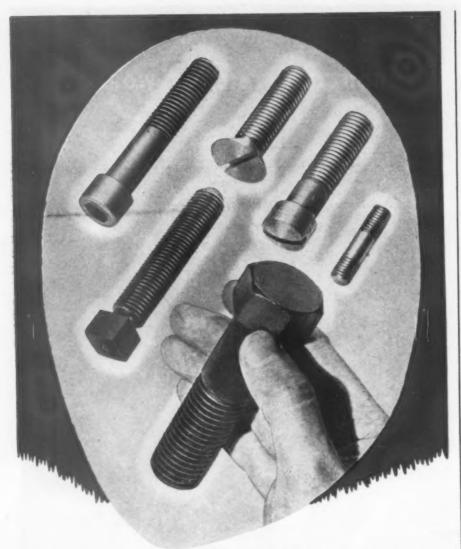
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CLEVELAND SPECIALIZATION in Cap Screws, Set Screws and Milled Studs

assures you extra accuracy, extra rigid inspection, extra fast delivery

Cleveland concentrates on making a few items well—a policy adhered to for more than 30 years. Because of this specialization, we carry what we believe is the widest range of sizes in the industry, including diameters to 1½ inches and unusual lengths. Fast production by modern facilities helps us to give you extra fast delivery of Top Quality Products. It pays you to specify and buy Cleveland Fasteners. The Cleveland Cap Screw Company, 2917 East 79th Street, Cleveland 4, Ohio; Warehouses, Chicago and Philadelphia.



Chemical and Wet Processing Industries

(Continued from page 316) in the form of tanks, piping, valves and fittings, and the constant need for maintenance, are likely to have an active purchasing program and a comprehensive inventory of plumbing supply items. This raises two points that the purchasing agent

will do well to keep in mind.

Careful inventory records and control should be maintained on such items to avoid overstocking, and a periodic check made as to obsolescent and little used items. Maintenance crews are likely to order unnecessarily large quantities to be prepared for unforeseen emergencies that may never develop: quantities requested should always be scrutinized with care, and questioned if the quantity seems excessive. In one instance in the writer's experience, the maintenance department ordered a gear box as an emergency item. More than a year later, the inventory disclosed that it was still in its original wooden case; maintenance men thought it a good idea to have one on the premises!

Another point, especially in larger plants, is the possibility of having some of the simpler types of equipment and appurtenances manufactured by the maintenance men rather than purchased as finished products. In the case of buckets, tanks, scoops, and the like which are requested by various departments, it frequently happens that the material is on hand and time of maintenance men available for such work. The purchasing department may find it advisable to bring the department head and the maintenance foreman together to discuss the possibility of furnishing the requirement in this way.

In dyehouses, inventory control of dyes is an important part of the purchasing department's duties, as many items are handled. The inventory record need not be elaborate, but a file of index cards covering the various items should be maintained, showing quantities on hand, rate of use, minimum stock quantity, and ordering time. There should be a periodic check or system whereby items are ordered when the supply on hand reaches the predetermined minimum. Some dyestuffs are constantly used, and while substantial quantities are kept on hand, there must yet be some means of control to assure that the stock is not exhausted before a new supply can be brought in. This is not as easy as it sounds, for some dyestuffs can-

(Please turn to page 322)

order G-E Time-Delay Renewable Fuses

in all commonly used sizes

Time-Delay that you can Really Depend on

Now, it's easier than ever to make the changeover to the new General Electric renewable fuses. A new, wider range of sizes makes these fuses applicable for all commonly-used circuits. So, why not get the habit of specifying General Electric for fuses you know you can depend on?

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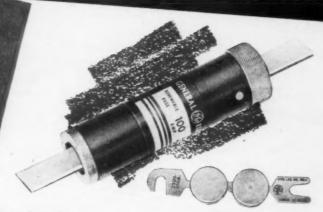
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VG.

Behind this great new line of fuses are all the reliability and patient research that go with any General Electric product you buy. Careful attention to the maintenance man's needs brought about the simplified three-piece construction of these new fuses. Research into the average requirements of today's circuits produced the measured time-delay of the new fuse links. You know there's dependability in fuses that bear the General Electric name.

So, get the satisfaction of using the new General Electric fuses right away. Order from your distributor today.

For information on the new General Electric fuses, write to Section D33-470, Construction Materials Department, General Electric Company, Bridgeport 2, Connecticut.



Measured time-delay action matches General Electric knifeblade-type fuses to today's circuit requirements. New link design uses heavy plates to absorb the heat of momentary overloads sensitive connecting links for fast action when loads exceed normal peak. New plates have no sharp corners to re-establish



New General Electric ferrule-type fuses have the extra protection of measured time delay, too. Both types of fuses also have the advantage of new three-piece construction for quick, easy juggle while you're changing links. You'll marvel at maintenance speed like this.

You Can Put Your Confidence in-

GENERAL



ELECTRIC

The New World Marketplace

RIGHT ON YOUR DOORSTEP!





CANADIAN INTERNATIONAL TRADE FAIR

May 30-June 10, 1949...Toronto

YOU CAN ACCOMPLISH the results of a long, expensive business trip abroad in a few days at the Canadian International Trade Fair . . . only a few hours' by air from any city on the continent!

In this great world showroom you'll find the products you need in your business or can sell at a profit... grouped according to trade classification regardless of national origin. You can compare all the goods that interest you... see all the new ideas in your own field... and make valuable contacts with businessmen of other nations.

THE TRADE FAIR SITE contains the world's largest permanent exhibition buildings and offers unique facilities (such as special interpreters and private club rooms) for you to do international business quickly and conveniently. All businessmen are cordially invited to attend.

Ask your nearest Canadian Government Representative for full information . . . or write directly to the Administrator, Canadian International Trade Fair, Exhibition . Grounds, Toronto.

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FROM .010" TO 5/8"O.D. MAX.

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A.I.S.I. Type 303, 304	Corrosion Resistance	Heating Elements
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MT 1008, 1010, 1015		
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Seamless	Fatigue Resistance	Business Machines
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Your Superior Distributor will be glad to aid you in selecting the one best analysis for your application. It is well to remember too, that our Engineering and Metallurgical Departments are always ready to help answer your questions on the use of small metal tubing.

We invite your request for Bulletin #31



†Reg. U. S. Trade-mark, International Nickel Co. *Low-cost WELDRAWN, Reg. U. S. Trade-mark, S. T. Co.

For Superior Tubing on the West Coast, call PACIFIC TUBE CO., 5710 Smithway St., Los Angeles 22, Cal. . AMgeles 2-2151

Chemical and Wet Processing Industries

(Continued from page 318)

not be obtained when ordered, but must await the manufacturing schedule of the manufacturer.

The rate of use is also important. In checking stocks, it may be determined that some items of the dvestuff inventory are not being used due to a change in requirements or in processing methods. These items should be disposed of promptly, preferably by resale in the market. Thus, the amount of money invested in non-essential materials is kept to

the practical minimum.

In the chemical and wet processing industries, good purchasing demands that the purchasing agent should know quite a lot about the technical and scientific aspects of the work being done, so that the materials he buys will be best adapted to the purpose. If he is not well informed upon any particular phase, he should make it his business to inquire politely why certain items are being requested. As a result of the information thus acquired over a period of time, he will be in a better position to recommend certain alternatives or better purchasing methods that will serve the purpose equally well, or better, with a saving to the company.

A Supply Purchasing System For Small Mill

(Continued from page 143)

up excessive stocks, and practically eliminating the dangers of accumulating surplus and slow moving stocks of inactive items.

Full responsibility in maintaining proper stocks, and in buying, is placed on the purchasing agent. No salesmen are permitted in the plant. Withdrawals from the stockroom are made only with proper authorization, so that the various departments are charged with the items used and accurate inventory balances are maintained at all times.

A mimeographed "Receiving and Shipping Report" form is used to record additions to and shipments from stock. Besides showing the quantity and description of the item, it indicates the stock bin where new supplies are placed and the department or account to which shipments are charged out. It is signed by either the receiving or shipping clerk, as the case may be.

Requests for supplies to be purchased, including those items not

(Please turn to page 324)

FORCE and **POWER**

When it strikes

Skilled craftsmen, who make Plumb tools, consider the hatchet as their masterpiece. No wonder, for of all Plumb tools none does so many jobs.

The Plumb hatchet hits hard, cuts clean. It's balanced for accuracy. Each blow lands with fullest force and power. This means easier work, less fatigue.

The head of each Plumb hatchet is made from one-piece of special analysis steel—heat treated for toughness—tempered for performance. Scientific control of the tempering assures a keen cutting edge that stays sharp longer. Heat treating makes the eye tough, yet ductile to absorb shock. The striking face is hardened to withstand pounding or driving. And the handle, shaped for comfortable grip, is made of seasoned second-growth hickory, tested for strength. The Plumb hatchet is truly an achievement in fine tool making.

Quality Comes FIRST

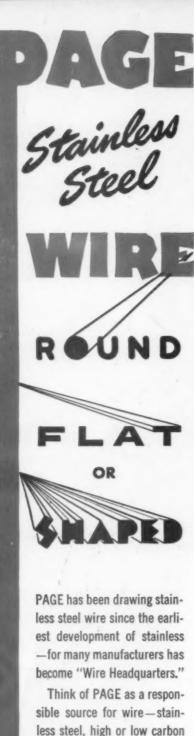
PLUMB

is FIRST in QUALITY

HAMMERS . HATCHETS . AXES . FILES

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steel. Whatever your problem involving wire . . .

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Monessen, Pa., Atlanta, Chicago, CO Denver, Detroit, Los Angeles, New York, Pittsburgh, Philadelphia, Portland, San Francisco, Bridgeport, Conn. PAGE STEEL AND WIRE DIVISION

A Supply Purchasing System For Small Mill

(Continued from page 322) regularly carried in stock, are made on a special form signed by the department overseer and approved by the superintendent. The information required on this form includes the purpose for which supplies are needed and amount on hand when the request is made. The purchasing agent indicates on this form where the order is to be placed, and the expenditure is authorized by the treasurer or assistant treasurer of the company.

A complete catalog library is kept up to date in the purchasing office, covering practica'ly all items that the mill might need, as a guide to prices and sources of supply. On occasion, it is advisable to call for bids on certain items, and a special form of "Price Inquiry" is used for this purpose. It is made out in duplicate, the bidder returning one copy with his quotation entered on the face of the sheet, and retaining one copy for his own records.

The purchase order form is made out in triplicate. The original is sent to the vendor, one working copy retained in the purchasing office for reference until the order is filled, and one for the general files. All of the forms are simple and self-explanatory. Clerical effort is held to the minimum.

The advantages of this system are, briefly, direct and centralized responsibility for purchase and issue of supplies, and accurate records of stocks on hand, how and why they are used. This results in c'ose control of expenditures and purchased supplies, preventing many of the losses which would trickle away if such controls were not exercised. Past experience with respect to vendors' deliveries, price trends, and rates of usage becomes a valuable guide in making current purchases, as compared with former conditions when no such records existed. The time of department heads is saved by relieving them of the duty of seeking materials, talking with salesmen, and issuing orders, and there is a positive record of expenses incurred for supplies for each department.

Small mills in any line of business, which have hesitated to install a formal purchasing system and consequently have had no accurate record of supply expenditures, will find substantial advantages and savings through a simple procedure modeled upon this outline. It has more than paid its way at Rocky Mount Mills.

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"It's Tidy and Fresh in there!"



Your employees and patrons will appreciate the pleasant atmosphere which DEODOROMA gives instantly to lavatories. Just slip a refill into your sturdy chromium Dolge diffuseur every ninety days or so, to assure constant, gardenfresh fragrance. DEODOROMA comes in three delightful scents rose, new-mown hay, and ced-osan - a blend of cedar and sandalwood.

For spot deodorization, use DEODOROMA crystals, in any of three fragrances. Urinal blocks in ced-o-san only. All these products work equally effectively in smothering foul odors.

Ask your Dolge Service Man for a demonstration, or write for folder EDJ-1044

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DELIVERY

STEEL SILLES LOCKERS By MEDART

Medart all-steel Lockers are now available for immediate delivery... In sizes and types to fit every industrial need... Medart has been supplying lockers to industry for more than a quarter of a century... Remember! There are other lockers that have some features that were originally developed by Medart...only MEDART LOCKERS have all those features which have earned for Medart the slogan "The Standard of Comparison."

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National Vulcanized Fibre



* Required:

An insulating material, light in weight, resistant to wear, with good dielectric strength, ready machinability. National Vulcanized Fibre with all these qualities, plus—was the perfect answer.

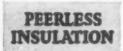
In your development of efficient, economical products, it pays to investigate



A tough, horn-like material with high dielectric and mechanical strength. Excellent machinability and forming qualities, great resistance to wear and abrasion, long life, light weight. Sheets, Rods, Tubes, Special Shapes.



About one-half the weight of aluminum, possesses an unusual combination of properties—a good electrical insulator, great mechanical strength, high resistance to moisture; ready machinability. Sheets, Rods, Tubes, Special Shapes.



The first fish paper developed for electrical insulation. Strong, smooth, flexible, with excellent forming qualities. High dielectric strength. Sheets, Rolls, Coils.

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Kimwipes*... new industrial tissues

At last! A new, efficient cleaning material for a myriad of special wiping uses. Soft, fresh KIMWIPES*industrial wiping tissues. Easy to handle—quickly disposable. KIMWIPES remove the smallest shavings around machined parts without scratching. Recommended for use on all highly finished surfaces. So absorbent, they blot up 16 times their own weight in liquids.

With KIMWIPES, you can use a clean sheet for each

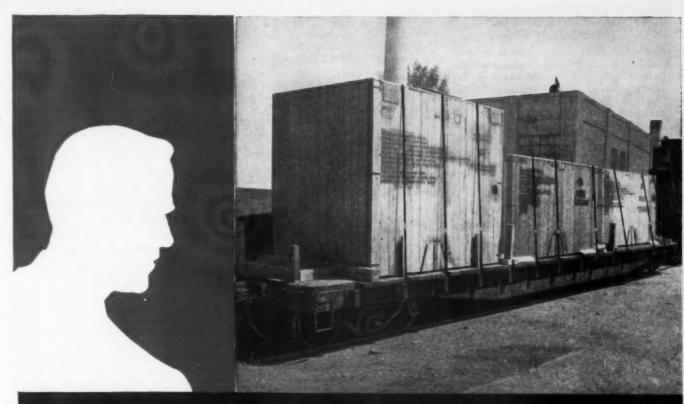


operation. They're safer because when you throw away the used tissue, all grit and foreign matter are disposed of. Useful in machine shops, packing rooms-almost any type of business. For full details and the name of the KIMWIPES distributor nearest you, write us on your letterhead. Kimberly-Clark Corporation, Creped Wadding Division, Neenah, Wisconsin, U.S.A.

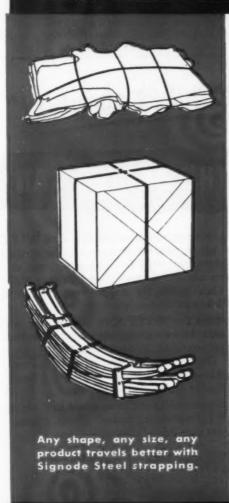
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The white silhouette above is a composite Signode packaging and shipping engineer. His job is to help you improve your shipping methods ... through the application of Signode's Six-Point System of Planned Protection.

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(1) A thorough study of your shipping practices to determine where Signode Steel Strapping Methods and Equipment can benefit; (2) a complete interchange of ideas and information with your plant personnel to insure the success of any new methods introduced; (3) recommendation of the strapping, tools, and accessory equipment best suited to your needs; and a determination of whether or not the services of Signode's packaging laboratory are required; (4) careful instruction of operators in the proper use of strapping and tools; (5) a periodic recheck of methods introduced, with your personnel as well as with carriers and receivers as required; (6) fast tool repair and replacement, regular personal contacts, and a bulletin service that keeps you abreast of latest developments in packaging and shipping.

Customers' reports prove that the savings which result regularly exceed the cost of the strapping the Signode engineer recommends—not to mention the reduction in damage claims and the increase in consignee good will.

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STEEL STRAPPING PROTECTS YOUR SHIPMENTS AGAINST DAMAGE

STUDY OF DUST EXPLOSIONS RELEASED BY OTS

Explosions in industry are more frequently caused by dust than is realized, according to a comprehenseive study of dust explosions released by the Office of Technical Services, Department of Commerce.

Entitled "Handbook of Industrial Hazards from Explosive Dusts" and written by W. H. Geck, German specialist in this field, the two-volume study is an analysis of the nature and composition of dust, its origin, and its ignition. It excepts only the flour, coal, and aluminum industries from its coverage. A general discussion in Volume One is supplemented, in the second volume, with a description of dust conditions in various industries, and analyses of several hundred instances of officially confirmed dust explosions.

The text of the study is in German, with an abstract, foreword and table of contents in English. Diagrams and tables accompany the text.

Among the protective measures named for decreasing dust hazards are controlled intensities of electric-light bulbs, properly designed suction systems, and adequate filters.

Particular attention is paid to dust problems resulting from fiber materials in the textile industry. Emphasis is also given to conditions in spray-painting, woodworking, cork, and sugar-producing plants. PB 85197 (Volume I.) and PB 85198 (Volume II.) Handbook of Industrial Hazards from Explosive Dusts, 117 and 165 pages, sell for \$3.00 and \$4.25 respectively.

These books may be purchased from the Office of Technical Services, Department of Commerce, Washington 25, D. C. Orders should be accompanied by check or money order payable to the Treasurer of the United States.

NEW EXPANSION SPEED NUTS DEVELOPED BY TINNERMAN



New expansion Speed Nuts which enable the blind assembly of parts to metal panels quickly and efficiently, are announced by Tinnerman Products, Inc., Cleveland, Ohio. The new nuts permit the complete assembly to be made from one side and eliminate the necessity of

two operators working on opposite sides of large panels. They are inserted into square or round holes and the part to be attached is then placed in position and the screw driven. They are self-retaining and expand when a tapping screw is inserted. The expansion Speed nuts are produced in two different basic designs, illustrated, Fig. 1 having spring arms that are formed to grip at the root of the screw thread. Figure 2 illustrates spring arms turned to "ride" on the crest of the screw threads.

FIRE-RESISTANT, SHADOW-PROOF, WASHABLE WINDOW SHADE

The Fabrics Division of the Du Pont Co., Wilmington, Del., announces a new type of window shade the principal characteristics of which are denoted in the full name-"Tontine" fire resistant, triplex quality, shadow-proof window shade. It is also washable. Production is under laboratory control, samples being brought into contact with a flame for 10 seconds and then withdrawn. They must show no afterflame after two seconds and no afterglow after 40 seconds. The stades will char, but will not support combustion. They are light and heavy-duty rollers are unnecessary. It is stated that they are sturdy and will resist cracking, fraying and "pinholing", and have a life expectancy of many years. They are available in a wide range of colors and resist fading; are waterproof, and easily cleaned with soap and water.

WITT CANS

STRAIGHT SIDES Provide
Rugged Strength... Greater
Resistance to Rough Han-

dling . . . Longer Wear!

THE WITT CORNICE COMPANY CINCINNATI 14, OHIO

"Originators of the Corrugated Can"

There's no bones about it!"

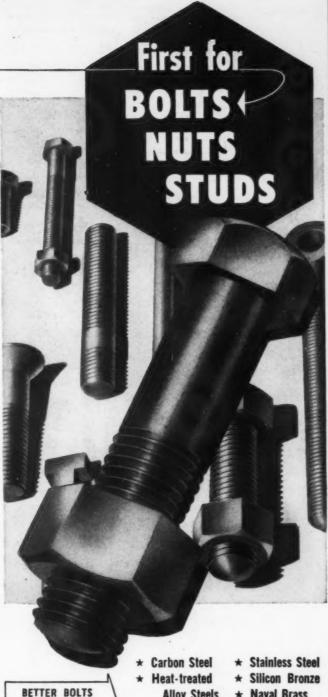
WITT IS THE BETTER CAN!

Dogs, and rodents too, can't share the enthusiasm of WITT Can owners who find all the better things in these sturdy Cans. A picture of strength, WITT Cans stand up under weather, wear, even abuse. Snug-fitting lids stay tight because the WITT Can holds its shape better than a camera-conscious model.

The underlying reasons for WITT Can superiority are simple, but so important. Heavy gauge steel is deep-rolled into the strongest corrugations known, reinforced with shock-absorbing steel structural bands, top and bottom, and then hot-dipped galvanized by hand, adding the heaviest possible coating of pure zinc.

This greater strength and resistance to weather and abuse is the reason why WITT "makes no bones" about guaranteeing 3 to 5 times the service life of ordinary Cans.





- - **Alloy Steels**
- **Naval Brass**
- * Accurately made in standard dimensions or to your own specifications.

USE HEADED AND THREADED FASTENERS FOR ECONOMY AND RELIABILITY

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STRONG AND TOUGH!



GARLOCK 7021 Compressed Asbestos Sheet Packing. Gaskets, styled GARLOCK 7022 in all sizes and shapes.

GARLOCK 7021 is a strong, dense, compressed asbestos sheet. This gasketing material is sufficiently compressible to compensate for normal irregularities in flange faces, but resistant to plastic flow under heavy bolt loads. Withstands extreme pressures and high temperatures. Specially recommended for severe oil and steam service.

THE GARLOCK PACKING COMPANY PALMYRA, N.Y.

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(TARLOCK

COMPRESSED ASBESTOS

GASKET SHEET

SINCE 1882



and special high-test animal glue.

its supple strength and stubborn stick-to-it-iveness are the result of years of experience and specialized "knowhow" in tape manufacture. Ask your supplier for Orange Core today or write us for the name of your nearest dealer. See how well it deserves its reputation "America's Most Popular Brand."



HOLDS FAST



Operation of production machinery in the presence of moisture, steam and acids has always been a serious problem in many processing industries. There are a number of LUBRIPLATE Lubricants that satisfactorily meet these unfavorable operating conditions, thereby protecting machine parts against rust and corrosion.



HODELL SASH CHAIN

HODELL SASH CHAIN has many applications in industry, in addition to its wide use in construction. Made in two patterns, Woven or Stamped Link, from high-tensile steel or bronze. Tough, flexible, smoothly formed and uniformly dimensioned, Hodell Sash Chain is available in a wide range of sizes.

Write for particulars.

Established 1886

HODELL CHAIN COMPANY 3924 COOPER . CLEVELAND 3, O.

DIV. of THE NATIONAL SCREW & MFG. CO.

An Expanded, Helpful Service to Purchasing Agents and Buyers and Other Department Heads.

The Reader Service Department of Purchasing Magazine

will procure for you any bulletin, catalog, or printed matter that may be mentioned in any of the advertising pages, as well as the catalogs and bulletins listed in the "Ask Purch" pages, or on products mentioned in the New Products Section.

You merely list your wants by Page Number and name of Product (or company) on the Postage-paid Reader Service Post Cards on Pages 19 and 20.

Thus you can keep your Catalog and Information files up-to-date, with minimum effort on your part. Our Reader Service Department will give your Postal request immediate attention.

Check Your Wants on the Cards as you Go through the Pages — That's All. Did You Ever | Shoot Fish in a Shoot Fish in a Rain-Barrel? Rain-Barrel?

But it's no easy job for motors to hold up under heat, dust splashing and dripping, unless, of course, they are VALLEY Ball Bearing Motors. Built to withstand the



"rugged" conditions of factory life, VALLEY MOTORS insure long continuous operation with heavy loads at high temperatures.

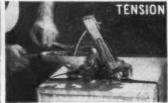
There's a VALLEY made in size and horse power to fit any machine design need.



ELECTRIC CORPORATION 4221 FOREST PARK BLVD. - ST. LOUIS 8, MO.









4 STEPS 5 SECONDS

STANLEY ACE STRAPPING TOOL • Here's how to put strapping on a production basis. This improved STANLEY ACE STRAPPING TOOL is light fast—simple—even a beginner can make time with it. Magazine holds 75-100 seals is easily loaded and seals in any position. The "Ace" is made in

three different sizes, to handle $\frac{3}{8}$ ", $\frac{1}{2}$ " and $\frac{5}{8}$ " strapping.

Decide now to put the "Ace" to work for you! Write for full information or ask for demonstration.

STANLEY

Reg. U.S. Pat. Off.

HARDWARE - HAND TOOLS

ELECTRIC TOOLS

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1	Gentlemen: Please send me free folder on the approved ACE Strapping Tool.	e
	Name	
	Title	
	Company	2
Anne	Address	
	City State	

The Stanley Works, Steel Stranging Division

BUDGET CONTROL FOR PURCHASING

We are interested in setting up a simplified departmental budget control for our purchasing activities, and to this end are wondering if at any time you have published an article which might be applicable.

R. C. Griffin

R. C. Griffin Attwood Brass Works Grand Rapids, Mich.

We are sending you Chapter 9 on "The Purchase Budget," in the series, "Basic Principles of Purchasing," published in PURCHASING.—Ed.

DISSENTER

We have your letter of the 10th advising us that we have been chosen to serve on this month's board of judges to assist in determining the answers to the question What's Ba_k of the Present Employment Situation?"

We do not agree with the seven questions on the back of your letter as construing what is back of the present employment situation, inasmuch as there are more fundamen al questions than these which we feel need to be answered to determine the real reason.

We are manufacturers of refrigerators, freezer chests, air conditioners, radios, radio and phonograph combinations, and television. Our volume of curchases for these items in 1948 was over one hundred mill on dollars and we get different answers to the seven questions you asked based on the different products we produce. We feel that you will undoubtedly get answers from some people which will be in a general category but we do not want to be a party to any information which is to be sent out to the trade which we feel to be in orrect.

We are afraid that the information that you secure from this ballot will be very misleading and unless we confine answers to specific products, we doubt if the information would be of good to any worthwhile purchasing man.

> R. A. Boyce, Director of Purchases Philoo Corp. Philadelphia, Pa.

The results of the employment survey were presented on pages 97-98 of last month's issue.

PURCHASING's monthly Survey of Purchasing Opinion neither aims nor claims to find absolute answers to questions on which there is bound to be difference of opinion and divergence of experience. It does provide representative cross-section of opinion from several hundred men who, from the nature of their responsibility in business, are exceptionally well informed on current trends and the underlying reasons in their own companies and in supplier industries. Their very differences of opinion constitute one of the valuable aspects of these studies, since the subject is considered from many points of view, and the prevalence of one opinion or another is an important factor in any controversial problem. Of course, every purchasing man must eventually

rely on his own analysis and judgment of a situation. A knowledge of the opinions of others is neither incorrect nor misleading; it can be highly stimulating to a more acurate appraisal of the various factors involved.—Ed.

BACKPAT

The article on page 90 of your Fetruary issue is, to my mind, one of the greatest expositions of the case for centralized perchasing that I have ever read. Allow me to congratulate you on the excellence of this article.

R. B. Cundiff, Purchasing Division, The Hospital Council of the National Capital Area Washington, D. C.

COMPLAINT

In September, 1948, we took advantage of your free offer, as advertised under "Ask Purch," which indi ated informative pieces of literature would be sent for the asking.

We are just wondering why we did not receive this material f.om you.

E. E. Spitzer, Asst. Purchasing Agent Brunswick-Balke-Collender Co. Marion, Va.

Although PURCHASING does not carry a supply of the manuals, catalogs, bulletins, and other literature offered in the Free Informative Literature Section (See pages 12, 14 and 16 "Ask Purch") and in the advertising pages (see return card on page 19), requests are forwarded promptly to the issuing companies. Our Reader Service Department will appreciate it if it is informed of non-receipt or undue delay.—Ed.

WHAT P.A.s THINK OF SALESMEN

We would like 100 copies of your August, 1948, Report on Purchasing Opinion, "Is Today's Salesmanship Equal to the Job?" Are they still available?

Keith J. Evans, Adv. & Sales Prom. Mgr., Joseph T. Ryerson & Son, Inc., Chicago 80, III.

Yes, reprints have been mailed.—

FIGURING ROLL FOOTAGE

In the December issue of PURCHASING we note the aricle by W. F. Schaphorst giving a chart for the measurement of linear feet in a roll.

This chart would be quite helpful to us in checking belting whi.h we purchase in rolls. However, we are unable to determine from the explanation given the correct method of counting number of turns in a roll. We cannot check the 20 turns from the illustration which is used as an example. We will appreciate a further explanation.

J. E. Baldridge, Purchasing Agent, Reeves Pulley Co., Columbus, Ind. The diagram included in the chart is intended merely to show the method of measurement of the roll, applicable to any set of values that might be found in any roll being measured. The number of turns shown in the illustration has no direct connection with the figures chosen for the example. The number of turns is determined by actual count. In the diagram, the number of turns is 9. It might be any number, just as "X" might be any number of inches. In the example that is worked out, the number of turns is taken as 20, and the distance "X" is taken as 10 inches. The explanation might have been clearer by assuming a roll of 9 turns, with the distance "I" equal to 10 inches, in which case the dotted line would go from "9" on the left-hand scale, showing a linear total of slightly more than 23 feet for the answer.—Ed,

PHOTOSTAT WITH COLOR

I happen to be one of the fortunate members of the Round Table to whom you sooke recently in Philadelphia. One of the tings I remember you saying was "a good Purchasing Agent should keep his eyes opened in all directions from which he might obtain every useful research."

During your talk, my eyes wandered to a chart you had among your papers relative to the Ford situation. I believe this chart was photostated and I remember seeing a color on it. I think it was red. I am looking for just such a process, namely to show different colors in a negative photostat.

Charles W. Bobb, Asst. Purchasing Agent, Fidelity-Philadelphia Trust Co., Philadelphia 9, Pa.

The color is not a part of the photostat itself, but is obtained by applying strips of transparent cellulose tape. This is available in a variety of colors and designs and can be procured in sheet form from any dealer in artists' supplies, under the trade name, "Zip-a-tone."—Ed.

GOOD FRIEND

The writer greatly enjoys your PUR-CHASING Magazine and carefully reads it each month.

You may rest assured that we mention PURCHASING right along, parti ularly when people are seeking advice in connection with their advertising program. We also mention PURCHASING when inquiring about any of the interesting items listed.

K. J. Lape, Purchasing Agent, John A. Manning Paper Co., Inc., Troy, N. Y.

BOUQUET

PURCHASING is certainly enjoyed and appreciated by all. It is a Magazine of the highest caliber.

F. E. Breuleux, Purchasing Agent Le Tourneau Co. of Mississippi Vicksburg, Miss.



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Alcoa Aluminum, most easily fabricated of all common metals, can be joined by commercially practicable methods.

Welding, brazing, or using Alcoa Aluminum Fasteners: there are Alcoa booklets that give you tested, practical advice. And samples of Alcoa Fasteners-sheet metal, wood and machine screws, nuts, bolts, washers, cotter pins-are available when you write, on your letterhead, to Aluminum Company of America, 1931 Gulf Building, Pittsburgh 19, Pennsylvania. Please specify the type and size you'd like. For technical booklets, see your Alcoa distributor, listed below:

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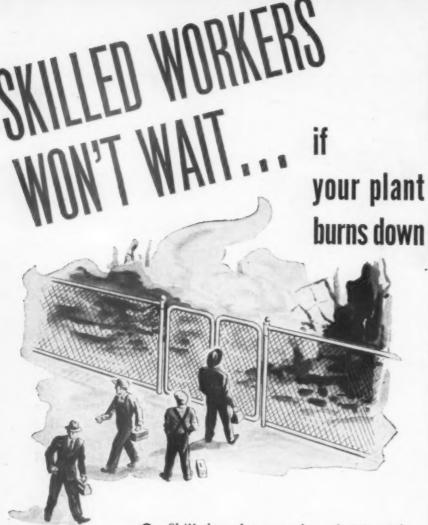
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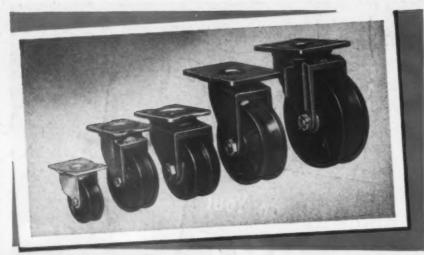
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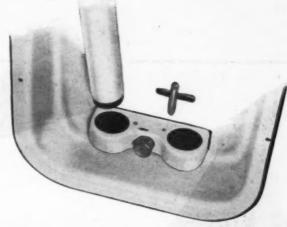
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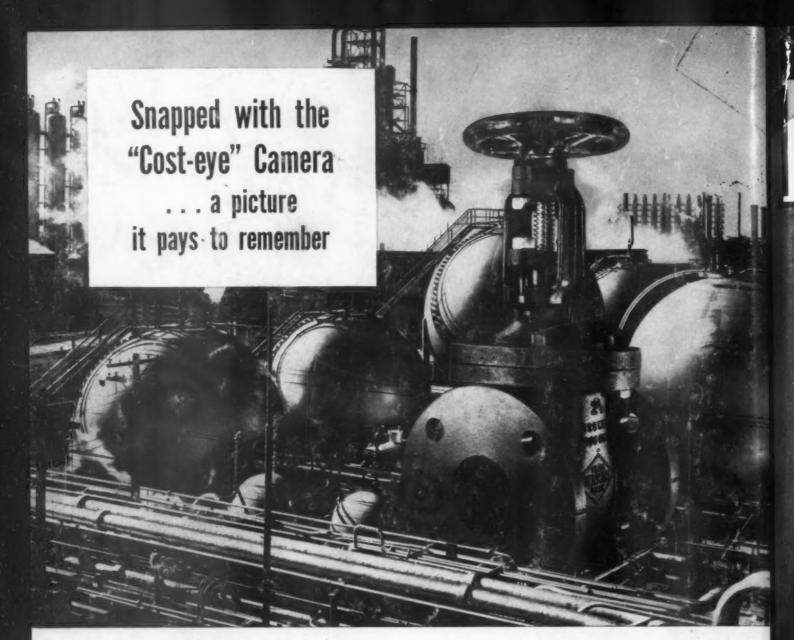
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